VIRTUAL CORPOREALITY:

NARRATIVE AND SPECTACLE IN HOLLYWOOD VR CINEMA

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Summary

This thesis is an inquiry into the emergence, development and eventual transmutation of the 'virtual reality' (VR) subgenre. I critically intervene in discourse on cinema, digital media, phenomenology and science fiction (SF) to explore how these films refract and enact Hollywood cinema's engagement with digital media and imaging technologies. Given that these films are *about* bodily immersive mediated experiences, I argue, their reflexive displays of special effects technologies are far from anti- or contra-narrative, as certain analyses imply.

My emphasis on the imbrication of narrative and spectacle motivates a critical questioning of further, often interrelated and mutually sustaining dichotomies between body and mind, cognition and affect, cinema and digital media, real and virtual, reflection and immersion. Via close textual analysis with a phenomenological leaning, I explore how these films variously disrupt such binaries. As both old and new media produce and address differently mediated publics, they adopt, adapt and assimilate the narrative-aesthetic modalities of other (digital) media, negotiating their impacts upon our phenomenological relations to the world and to cinema. Through reflexive allusions to their increasingly mediated extradiegetic contexts, they function to uphold cinema's ability both to *present* innovative technological spectacle and to *represent* contemporary experiential realities.

I explore how earlier VR films *Tron* and *The Lawnmower Man* aesthetically and conceptually 'map' VR, and how *Strange Days* and *The Matrix* ambivalently explore the implications of intensified and widespread virtual experience in radically different ways. I characterise *Avatar* and *Source Code* as 'Post-VR' cinema, in which formerly upheld dichotomies – particularly between 'real' and 'virtual' – prove untenably anachronistic. I ultimately maintain the value of an approach to popular cinema which apprehends genre, context and convergence, while advocating sustained and detailed close analysis as a means of grasping cinema's narrative-aesthetic functions in the digital age.

I hereby declare that this thesis has not been and will not be submitted in whole or in part to another university for the award of any other degree.

Signature:

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Contents

Introduction

Since the late 1970s when the first CG images appeared in film and television, there have been colossal shifts in the ways in which popular cinema has been produced, distributed and consumed. Non-linear digital editing formats have permitted unprecedented control over the image. Digital audio technologies such as THX and Dolby Digital have allowed filmmakers to produce affective soundscapes to match their spectacular visual effects. More recently, the 2011 push towards exclusively digital shooting and the standardisation of digital projection means that, in the present situation, 'no aspect of movie production, distribution or reception today is outside the use of digital technologies.'[1] The same period has seen diverse digital developments beyond the cinematic context, including the shift from arcade to console gaming and the introduction of 3D video games, the rise of home computing and the domestic proliferation of the internet.

In what follows, I trace the emergence, development and eventual reinvention of the virtual reality (VR) subgenre in relation to these shifts. Beginning with *Tron* in 1982, I explore how such films both substantiate and allegorically explore digital technologies' ground-breaking impacts on cinema production, distribution and consumption, on spectatorship and contemporary media culture. I categorise the VR subgenre as films which (re)present bodily immersive digital environments which are distinct from ordinary 'reality' within the diegesis.[2] I analyse *Tron* (Lisberger, 1982), *The Lawnmower Man* (Leonard, 1992), *Strange Days* (Bigelow, 1995), and *The Matrix* (Wachowski and Wachowski, 1999), as well as two more recent examples which I refer to as 'Post-VR films' – *Avatar* (Cameron, 2009), and *Source Code* (Jones, 2011). Of course, the main films discussed do not exhaust *all* representations of VR (or Post-VR) in popular cinema[3] – although I consider my selected sample broadly and sufficiently representative of how Hollywood VR films refract their

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[1] J. Sperb, *Flickers of Film: Nostalgia in the Time of Digital Cinema* (New Brunswick, NJ: Rutgers University Press, 2015), 1.

[2] Diverse other SF films have explored technological re-embodiment and 'virtual' experience, for instance *Blade Runner* (Scott, 1982), *Total Recall* (Verhoeven, 1990), *Hackers* (Softley, 1995) *Minority Report* (Spielberg, 2002) and *Surrogates* (Mostow, 2009). These, however, do not represent such experiences as being both full-bodily immersive and taking place within environments that are diegetically digitally generated.

[3] *Brainstorm* (Trumbull, 1984), *Virtuosity* (Leonard, 1995), *The Thirteenth Floor* (Rusnak, 1999), *eXistenZ* (Cronenberg, 1999) and The *Matrix* sequels (Wachowski & Wachowski, 2003) are all premised upon diegetic VRs. *Disclosure* (Levinson, 1994) and *Vanilla Sky* (Crowe, 2001) both employ VR more austerely – the former confines it to a single, ancillary scene, while the latter employs the concept in a plot twist at the film's end. Another example which would qualify as Post-VR is *Gamer* (Neveldine & Taylor, 2009), in which nanotechnology enables paying users to be re-embodied into human avatars within materially real, yet strictly delimited ludic spaces.

wider techno-cultural contexts, narrating the inception of digital technologies in the increasingly indivisible triad of film, media culture and everyday life. Fundamentally, what follows is a study about cinema in the digital age. More specifically, it is a study about how the VR (and Post-VR) subgenres have addressed – with particular reflexivity – cultural, technological and phenomenological shifts in much the same way as cinema itself has historically done so.

Central to my thesis is an emphasis on how narrative and spectacle coalesce to this end. Narrative and spectacular coalescence in (digital) cinema has gained more attention in film studies since around the turn of the century – for example in the work of Warren Buckland, Aylish Wood, Geoff King, Stephen Prince, Lisa Purse and Kristen Whissel.[4] In her compelling 2015 study of digital effects in cinema, for example, Whissell argues that 'many awe-inspiring visual effects articulate a range of complex concepts and thematic concerns that are central both to the narratives of the films in which they appear and to the broader historical contexts in which the films were produced and exhibited.'[5] I take a similar approach to the VR and Post-VR subgenres, in which the extradiegetic resonance of audiovisual effects operates in ways which support rather than detract from narratives which engender – even demand – a kind of spectatorship open to extradiegetic reflection.

While the familiarity of spectacle in popular genre cinema makes it easy to be taken as a self-evident concept, it – perhaps fortunately – lacks a concrete definition. While cinematic spectacle registers differently across forms and genres from horror to melodrama, SF to documentary, it is fundamentally taken to signify a moment of display at which the spectator is invited to marvel. Yet such moments risk being considered distinct from the narratives in which they are embedded, although it is evident that the function of spectacle almost always extends beyond the decorative. Moreover, despite the conceptual and etymological association of spectacle with vision, it is important to note that, almost invariably, the impacts of cinema's spectacular moments are also realised through sound. In this thesis, then, I mobilise the term 'spectacle' in recognition of its broadness as a

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[4] W. Buckland, 'Between science fact and science fiction: Spielberg's digital dinosaurs, possible worlds, and the new aesthetic realism' in *Screen* vol. 40, no.2 (1999), 117-192; G. King, *Spectacular Narratives: Hollywood in the Age of the Blockbuster* (London: I. B. Tauris, 2000); A. Wood, 'Re-Animating Space' in *Animation*, vol. 1, no. 2 (November 2006), 133-152; S. Prince, *Digital Visual Effects in Cinema: The Seduction of Reality* (New Jersey: Rutgers University Press, 2012); L. Purse, *Digital Imaging in Popular Cinema* (Edinburgh: Edinburgh University Press, 2013); K. Whissel *Spectacular Digital Effects: CGI and Contemporary Cinema* (Durham, NC: Duke University Press, 2014). Prince for example points to a tendency in film studies to dichotomise narrative and special effects, which he traces back to the contrast between Lumiere and Méliès. See *Digital Visual Effects in Cinema*, 1, 3.

[5] K. Whissel *Spectacular Digital Effects: CGI and Contemporary Cinema* (Durham, NC: Duke University Press, 2014), 4.

concept, and the potential pitfalls of a reductive or uncritical use of the term. As part of narrative cinema's textual assemblage, I assert, spectacular audiovisual effects address us through their allusive, supportive or descriptive relations to, for example, dialogue and character. By focusing on VR and post-VR cinema, my uses of the term serve to emphasise how popular cinema's spectacular rhythms – its moments of awe and sensation – not only support our comprehension of the film as text, but actively co-constitute film narrative itself.

VR and Post-VR films have often been analysed in terms of their innovative visual effects, from *Tron*'s first-time representation of a fully CG environment in cinema, to *Strange Days*' experimental mobilisation of analogue POV, to *Avatar*'s unprecedented use of 3D. What is missing from many analyses, however, is the extent to which these films' narratives are closely co-dependent upon their particular mobilisations of audiovisual special effects. Throughout this thesis, I demonstrate how the allegorical, descriptive and narrative capacities of audiovisual effects are mobilised as a matter of course in the context of films which are explicitly *about* imagined forms of technologically mediated experience; narratives which are concerned above all to visualise, narrate and explore what it means to inhabit digitally mediated space. In VR and Post-VR films in particular, the affective, narrative and epistemological pleasures offered by special effects are founded upon their credible diegetic integration; that is, their ability to create cognitively believable and affective mediated realities which resonate with their increasingly digitally mediated contemporary moments. In analysing these films, then, I question whether (digital or analogue) spectacle can be thought of as any more secondary to, or divorced from, any other cinematographic element from which contemporary film narrative is constructed.

Beyond my focus on spectacle and narrative I call to question other, often mutually sustaining false dichotomies which persist in the study of contemporary popular cinema. Often, Prince notes:

> Realism and fantasy are taken as oppositional modes… Spectacle is taken as being antithetical to narrative. The digital counters the analog and the indexical. Humanly crafted visual images contrast with computer-generated images.[6]

VR and Post-VR cinema forms a particularly strong field through which to question these interrelated assumptions, blurring boundaries between narrative event and 'disruptive' spectacle, analogue and digital image, cinema and digital media, realism and fantasy, and

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[6] *Digital Visual Effects in Cinema*, 222.

moreover between mind and body: cognition and embodied affect. In unsettling such oppositions, I draw on and intervene in established fields in which they are already being progressively disrupted. Engaging in diverse fields of inquiry, I necessarily limit the scope of this project by keeping the films themselves at the centre, examining them, through close analysis, in relation to discursive arguments and analyses which they most resonate with, complicate or seem to affirm.

As I progressively demonstrate, VR and Post-VR films exhibit striking continuity and symbiosis between narrative and visual effects, immersion and reflexivity, diegetic and extradiegetic resonance. They highlight how a conceptualisation of the digital (media or audio-image) in terms of its ontological or experiential difference from cinema risks eliding how 'the digital' (as media and technology) forms a transformative yet continuous part of the evolution of cinematic form. In merging the 'real' and the fantastic, moreover, such films highlight and negotiate how technologies do, and may in future, mediate our perceptions of realism, epistemology and truth. Fusing the utopian and the dystopian, their often ambivalent attitudes to VR work to highlight and question the conceptual separation of body and mind; a position which, I argue, is often concomitantly communicated through spectacle and narrative. Before more incisively establishing how VR and Post-VR films challenge such ostensible oppositions, it is worth pausing to situate the object of study.

What is Virtual Reality (and VR cinema)?

> 'When anything new comes along, everyone, like a child discovering the world, thinks that they've invented it, but you scratch a little and you find a caveman scratching on a wall is creating virtual reality in a sense. What is new here is that more sophisticated instruments give you the power to do it more easily. Virtual reality is dreams.' – Morton Heilig[7]

The term 'virtual reality' eludes a fixed definition, either as a popular cultural imaginary or as a technological reality. Since Jaron Lanier coined the term's current meaning in 1986,[8] VR has broadly been used to refer to computer generated environments which produce immersive and reciprocally interactive experiences. The concept has intersected with computer simulation, artificial reality, virtual environments, augmented reality and

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[7] M.L. Heilig, cited in F. Hamit, *Virtual Reality: An Exploration of Cyberspace* (Carmel, IN: Howard W. Sams/Prentice-Hall Publishers, 1993), 57.
[8] See M. Heim, 'The Design of Virtual Reality' in M. Featherstone and R. Burrows (eds.), *Cyberspace/Cyberbodies/Cyberpunk: Cultures of Technological Embodiment* (London: SAGE Publications, 1996), 65.

cyberspace.[9] As Frank Biocca and Mark Levy note, VR has become a dominant discursive term which has shaped these technologies' futures by providing a goal: 'the creation of virtual reality.' They recognise that VR 'is not a technology; it is a destination.' In a very significant sense, then, VR operates as a potent, malleable and enduring cultural imaginary which 'dangles in front of our eyes a vision of the media's future'.[10]

Well before the term VR (and its associations with digital media) entered into the cultural lexicon, diverse media have grappled with the implications of technologically simulated, immersive experiences. In literature, this tradition can be traced to early twentieth century short stories: Green Peyton Wertenbaker's 'The Chamber of Life' published in SF magazine *Amazing Stories* in 1929,[11] and Stanley G. Weinbaum's *Pygmalion's Spectacles*, published in 1935.[12] These earlier examples overwhelmingly tend to align their imagined 'VRs' with cinema itself – as does Aldous Huxley's *Brave New World (*1932).[13] Later, Daniel F. Galouye's *Simulacron-3* (1964)[14] imagines a computerised artificial world,[15] while D.G. Compton's *Synthajoy* (1968) imagines VR as magnetic tape-recorded experience.[16] Associations between VR and cyberculture, computing and the net intensified in the 1970s and 1980s. In television, *Star Trek*'s 'holodeck' – an immersive simulation centre controlled by the ship's computer – first appeared in the animated series in 1974.[17] In 1984, William Gibson coined the term 'cyberspace' in his seminal novel *Neuromancer*,[18] in which VR experience is figured as an immaterial world of data. In the early 1990s, ABC series *Wild Palms* (1993) reflexively imagined VR as an extension of television itself.

As the diversity of media representations suggests, VR as a particular science-fictional theme allows for unusually malleable ways of articulating the experiential modalities of different media technologies. This conceptual versatility is occasioned

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[9] For a detailed and fairly recent account of the history of VR and its many incarnations, see M. Levy and F. Biocca, 'The Vision of Virtual Reality' in id. (eds.), *Communication in the Age of Virtual Reality* (Hillsdale, NJ: Lawrence Erlbaum Associates, Inc. Publishers, 1995), 3-14.
[10] Ibid., 4.
[11] G. WertenBaker, 'The Chamber of Life' in *Amazing Stories* (October 1929) [available at http://www.gutenberg.org/files/25862/25862-h/25862-h.htm, accessed 12/01/2016].
[12] In which fictional inventor Albert Ludwig has invented "[a] movie that gives one sight and sound... taste, smell, and touch... You are in the story, and instead of being on a screen, the story is all about you, and you are in it." See S. G Weinbaum [1935], *Pygmalion's Spectacles* (n.p.: Valde Books, 2009), 2.
[13] A. Huxley [1932], *Brave New World* (London: Vintage, 2007).
[14] D. F. Galouye, *Simulacron-3* (New York: Bantam Books, 1964).
[15] Also published as *The Counterfeit World*, Galouye's novel inspired both Rainer Werner Fassbinder's 1973 television series *World on a Wire*, and US-German film *The Thirteenth Floor* (Rusnak, 1999).
[16] D. G. Compton, *Synthajoy* (New York: Ace Books, 1968).
[17] The holodeck first appeared in 'The Practical Joker' – the third episode of the second animated series. It first appeared in the live-action series in the pilot episode of *Star Trek: The Next Generation*, 'Encounter at Far Point', which aired in 1990.
[18] W. Gibson [1984], *Neuromancer* (London: Harper Collins Publishers, 1995).

perhaps by the fact that, in reality, VR has existed more as a fantasy than as an actual technology – an impossible destination.[19] Despite the fact that VR technologies are being developed to this day – the Oculus Rift was released in March 2016 – progress has been slow,[20] and the most compelling and prolific representations of VR have been cultural ones. By virtue of remaining unrealised, at least in its iconic form, VR operates as a recognisable yet sufficiently indefinite SF device for self-reflexivity and formal experimentation. Divorced from actuality, VR can be mobilised as a fantasised surrogate for the media forms with which cinema converges and competes, and also as a surrogate for cinema itself.

Approaches to SF

As James Chapman and Nicholas Cull note, the histories of SF and cinema 'have run in parallel ever since their simultaneous points of origin at the end of the nineteenth century.'[21] Historically, SF cinema has both reflected and generated interest in (cinematic and other) technology, modernity and their impacts on human life. From the trick films of Georges Méliès to contemporary special-effects-driven blockbusters, SF cinema has been closely linked to the technological history of cinema itself, mobilising cutting-edge technologies in the realisation of speculative worlds which straddle the 'real' and the fantastic. Chapman and Cull identify two main schools of SF cinema criticism. The first, typified by the works of John Baxter, John Brosnan and Christine Cornea,[22] takes a historical and taxonomic approach which Chapman and Cull critique as often broad and prone to generalise, in that 'they usually have little space for the detailed consideration of individual films', on occasion marginalising those which do not fit the paradigm.[23] On the other hand, they identify an approach which engages with SF in relation to cultural theory; postmodernism, simulacra, hyperreality, self and other, humanity and the monstrous; key concerns in the work of such scholars as Scott Bukatman, Vivian Sobchack, Anette Kuhn

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[19] VR has also been recurrently mobilised and reshaped as digital media art – highlighted for example at the Barbican's *Serious Games* exhibition, which ran between 1996 and 1997, and included Char Davies' *Osmose* (1995), an immersive virtual environment.

[20] In 1998, Scott Bukatman asked, 'is VR the first technology to become obsolete before it was even invented?' See S. Bukatman, 'The End of Offscreen Space' in J. Lewis (ed.), *The New American Cinema* (Durham: Duke University Press, 1998), 265.

[21] J. Chapman and N. J. Cull (eds.), *Projecting Tomorrow: Science Fiction and Popular Cinema* (London: I. B. Tauris, 2013), 1.

[22] J. Baxter, *Science Fiction in the Cinema* (London: Zwemmer, 1970); J. Brosnan, *Future Tense: The Cinema of Science Fiction* (London: Macdonald and Jane's, 1978); C. Cornea, *Science Fiction Cinema: Between Fantasy and Reality* (Edinburgh: Edinburgh University Press, 2007).

[23] *Projecting Tomorrow*, 6.

and J.P. Telotte.[24] These, they point out, do focalise individual films through close reading, but often tend to use a limited range of canonical examples – such as *Alien* (Scott, 1979), *Blade Runner* (Scott, 1982) and *The Terminator* (Cameron, 1984).[25] In this project, I engage most centrally with the latter approach, advocating a return to textual specificity and close analysis in order to examine the limitations of approaches which are unable to account for the particular narrative-aesthetic strategies of specific VR and Post-VR films.

Phenomenology and Cinema

Especially salient to this study is how affective and kinaesthetic special effects interact with narrative in VR and Post-VR cinema, often in ways which evoke sensory experiences beyond cinema's technical audiovisual limitation. In diegetically depicting embodied VR experiences, such films present a challenge to the conceptual separation of body and mind – or affect and cognition – despite their ostensible maintenance of this duality. In order to access and illustrate this, I draw from phenomenology throughout this study – in particular Maurice Merleau-Ponty's existential phenomenology,[26] as well as discourse in which his approach has been brought to bear on cinema.

Existential phenomenology, as theorised by Merleau-Ponty, involves wilfully suspending paradigms through which the world is commonly described in order to primarily apprehend (and describe) experience itself. Merleau-Ponty rejects both empiricist and intellectualist conceptualisations of the world which, while radically opposed in most ways, are in implicit agreement about a fundamental conceptual separation between mind and matter. Empiricism's fundamental conceptualisation of the world as complete and 'given', results in an objectivisation of consciousness, a focus on the atomistic impacts of given phenomena on the sense organs, and the subsequent disavowal of the perspectival nature of perception.[27] On the other hand, intellectualism maintains this same fundamental issue, but adds to it a further problematic: the assumption that the world exists only *for* the

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[24] S. Bukatman, *Terminal Identity: The Virtual Subject in Postmodern Science Fiction* (Durham: Duke University Press, 1993); V. Sobchack, *Screening Space: The American Science Fiction Film* (New Jersey: Rutgers University Press, 1987), 282; A. Kuhn (ed.), *Alien Zone II: The Spaces of Science Fiction Cinema* (London: Verso, 1999); J. P. Telotte, *Science Fiction Film* (Cambridge: Cambridge University Press, 2001).
[25] *Projecting Tomorrow*, 6.
[26] I chiefly draw from M. Merleau-Ponty [1945] (C. Smith trans.), *Phenomenology of Perception* (London: Routledge, 1962).
[27] Ibid., 23-24.

thinking subject.[28] As A.D. Smith eloquently puts it, empiricism 'starts with objects in the world as given, and tries to understand the mental in terms of them', while 'intellectualism, or idealism, starts with the mental as what is given, and then tries to explicate the physical in terms of it.'[29] In spite of their radical differences, Merleau-Ponty notes, both empiricism and intellectualism provide themselves with 'a ready-made world', eliding the *processes* by which phenomena are made present to, and apprehended by, the subject.[30]

In ameliorating these fundamental limitations, Merleau-Ponty takes up and develops (existential) phenomenology as an approach which describes the world *as experience*. Phenomenology refutes any basic separation of (conscious, embodied) subject and objective world by starting with 'the irreducible involvement of subject and world' and the centrality of the body in perception.[31] By centralising the point of encounter between subject and object, existential phenomenology foregrounds the primacy of the material body in our embodied, cognitive and sensory apprehension of the world. Sobchack notes that embodiment within this paradigm 'entails both the body and consciousness, objectivity and subjectivity, in an *irreducible ensemble*'.[32] The intersubjectivity of experience – the concurrence and reversibility of objects and subjects – is crucial to recognising that phenomena exist for others as they exist for us, whether commonly or differently, and that we simultaneously exist subjectively and objectively. This is important in relation to the films under study which, as I progressively demonstrate, often foreground the irreducible involvement and mutual co-constitution of subjects and phenomena, and demonise or reject solipsistic uses of VR technologies within their moral-ideological economies. Phenomenology's fundamental disagreement with the mind-body dichotomy is moreover central to my assertion that narrative (often aligned with the cerebral) and spectacle (often aligned with the physical or affective) need not be read in isolation, but can be recognised as interconnected elements which symbiotically constitute the totality of cinematic experience.

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[28] For Merleau-Ponty, the 'intellectualist process of self-discovery' elides the process of perception 'because it is looking for the conditions which make it *possible* or without which it would not exist, instead of uncovering the operation which brings it into reality, or whereby it is constituted.' See Ibid., 38.
[29] A. D. Smith, 'The Flesh of Perception' in T. Baldwin (ed.), *Reading Merleau-Ponty: On Phenomenology of Perception* (Abingdon: Routledge, 2007), 2.
[30] *Phenomenology of Perception*, 208.
[31] In phenomenology, Smith notes, '[t]he 'subject' of perception is the body. Here we have two things that both empiricism and intellectualism would regard as separate and in need of being related. *Perception* is a 'mentalistic' notion; and the *body* is 'physical'. Merleau-Ponty, however, unifies them as the subject and the predicate of his fundamental assertion: *the body perceives*.' See *Reading Merleau-Ponty*, 2.
[32] V. Sobchack, *Carnal Thoughts: Embodiment and Moving Image Culture* (Berkeley: University of California Press, 2004), 4.

In 2004, Sobchack observed that '[u]ntil quite recently… contemporary film theory has generally ignored or elided both cinema's sensual address and the viewer's "corporeal-material being."[33] However, theorists such as Laura Marks, Jennifer Barker and Steven Shaviro have since begun to centralise the haptic dimensions of film experience.[34] Many of these approaches draw explicitly from Merleau-Pontyan phenomenology, owing perhaps to its focus on the body (as 'the system of all my holds on the world'[35]), which lends itself to the study of film as an affective and synaesthetic medium.[36] As Sobchack astutely points out, 'we do not see any movie only through our eyes', rather, we 'feel films with our whole bodily being';[37] it is on these grounds that phenomenological approaches to cinema – including my own – work to challenge the dominance of (audio)vision in film analysis.

Phenomenology provides a framework through which to suspend received knowledge and paradigmatic assumptions; to 'disrupt our familiarity'[38] and make way for new cognitive and embodied understandings. As Sobchack notes, existential phenomenology is focused 'on the *relations between* the subjective and objective aspects of material, social and personal existence and sees those relations as constitutive of the meaning and value of the phenomena under investigation.'[39] This dialectical emphasis legitimises the project of subjective description through attempts to describe what is common in experience, while acknowledging differences and idiosyncrasies which inevitably shape subjective perceptions. By focusing on experience – bracketing off assumptions concerning the ontology of the image (or sound) – these films can be read in terms of their textually specific rather than assumed or prescribed functions.

It is worth briefly circumscribing how, and to what ends, the 'affective' and the 'cognitive' are conceptualised and used in this thesis. Most usually, my use of 'affect'

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[33] Ibid., 55-56.
[34] L. U. Marks, *The Skin of the Film: Intercultural Cinema, Embodiment and the Senses* (Durham and London: Duke University Press, 2000); L. U. Marks, *Touch: Sensuous Theory and Multisensory Media* (Minneapolis: University of Minnesota Press, 2002); J. Barker, *The Tactile Eye: Touch and the Cinematic Experience* (Berkeley: University of California Press, 2009); S. Shaviro, *Post Cinematic Affect* (Winchester: O-Books, 2010).
[35] M. Merleau-Ponty, 'The Primacy of Perception' in id. and J. Edie (eds.), *The Primacy of Perception and other essays on phenomenological psychology, the philosophy of art, history and politics* (Evanston, IL: Northwestern University Press 1964), 18.
[36] Merleau-Ponty's existential phenomenology has been more influential in film studies than has Husserl's original transcendental phenomenology. A notable exception to this is Allan Casebier's more Husserlain approach to the phenomenological study of film. See A. Casebier, *Film and Phenomenology: Towards a Realist Theory of Cinematic Representation* (Cambridge: Cambridge University Press, 1991).
[37] *Carnal Thoughts*, 63.
[38] V. Sobchack, *The Address of the Eye: A Phenomenology of Film Experience* (New Jersey: Princeton University Press, 1991), 43.
[39] V. Sobchack, 'The Scene of the Screen: Envisioning Cinematic and Electronic "Presence"' in H. U. Gumbrecht and K. L. Pfeiffer (eds.), *Materialities of Communication* (Stanford: Stanford University Press, 1994), 87.

signifies the immediate perceptual impacts of particular audiovisual moments – especially spectacular ones. I moreover emphasise how the sensory rhythms produced by special effects work to mobilise spectatorial identification, and so to elicit emotional and cognitive identification with film narratives. The embodied sensation evoked by spectacular sequences, I assert, is tightly bound up with the understanding of what that sequence *signifies* within the text as a whole. While Brian Massumi for instance has theorised affect as *prior to*, and thus distinct from, cognitive processing and emotion,[40] my own approach resonates more consistently with, for instance, Sobchack and Marks, who more actively resist any uncomplicated reduction of affective spectacle to raw and unprocessed sensation. Throughout this thesis, I emphasise the interconnectedness of spectacle's immediate bodily impact, its emotional elicitations, and its function to produce meanings that can be comprehended and reflected upon by the spectator.

Yet a phenomenological approach to cinema does not begin and end with the body's affective (and subjective) relation to the text. As Jane Stadler notes, a meaningful phenomenological account of cinema must extend beyond the film itself, to acknowledge the techniques and technologies of production as well as the historical and cultural contexts of production and reception. This, she argues, 'is integral to presenting a rich description of the object of enquiry and identifying the presuppositions that inflect the spectator's embodied experience.'[41] Equally, as Elena Del Rio notes, a focus on affective experience does not displace the study of film as a formal language:

> While structures of language and meaning are crucial to the analysis of the film experience, these are not, as in the psychoanalytic model, radically at odds with a pre-linguistic or pre-reflective realm… Instead, language and meaning are rooted in the perceptive body, continuing or extending its intentions in and toward the world.[42]

Attempts to access the pre-reflective dimension of the film experience do not undermine the reflective sense-making processes involved in reading film, or their embeddedness in culture and language, but rather situate them in relation to the affective modalities of cinema. As Marks notes, '[b]y paying attention to bodily and sensuous experience, we will find that it is to a large degree informed by culture. Perception is already informed by

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[40] B. Massumi, 'Introduction' in G. Deleuze and F. Guattari (B. Massumi trans.), *Capitalism and Schizophrenia: A Thousand Plateaus* (Minneapolis: University of Minnesota Press, 1987), xvi.
[41] J. Stadler, 'Cultural Value and Viscerality in Sukiyaki Western Django: Towards a Phenomenology of Bad Film' in *Continuum: Journal of Media & Cultural Studies*, vol. 24, no. 5 (Oct. 2010), 680.
[42] E. Del Rio, 'Film' in H. R. Sepp and L. Embree (eds.), *Handbook of Phenomenological Aesthetics* (Dordrecht: Springer, 2010), 111.

culture, and so even illegible images are (cultural) perceptions, not raw sensations.'[43] That form and context are accessible through – and significant to – a phenomenological study of film is important in the context of this thesis, given my focus on how the contexts of production are often continuous with and caught up in VR cinema, and moreover on how the affective and cognitive, narrative and spectacular, overlap and coalesce. As Paul Gormley points out, '[i]t is not easy to make clear-cut divisions between images that have a bodily affect and those that operate through referencing structures of cinematic knowledge.'[44] My analyses illustrate that this is especially true in the VR and Post-VR subgenres, in which the affective and the cognitive operate so mutually and concurrently.

The inception of digital technologies in cinema has engendered diverse critical responses to their impacts upon the phenomenological address of cinema. Ariel Rogers for instance notes that 'the discourses surrounding the emergence of digital cinema, in disparate ways, grappled with the resultant implications for viewers' experience of intersubjectivity and embodiment.'[45] Throughout this study, I critically engage with existing phenomenological approaches to digital cinema – for example by Rogers, Wood,[46] Bukatman, Thomas Elsaesser and Malte Hagener[47] – to both emphasise the affective dimensions of the digital audio-image in cinema, and to demonstrate how VR and Post-VR films problematise (explicit or implicit) prescriptive assumptions about its phenomenological impacts. In their explicit address to and about the body, I assert, the films under study complicate arguments that 'contemporary mediated life is marked by a sense of inwardness wherein the body has become increasingly peripheral to experience.'[48]

William Brown for example argues that the use of spectacular digital imagery has led to popular cinema becoming less 'anthropocentric', through its transformation and centralisation of space. He asserts that 'characters in digital cinema no longer stand out as unique agents against the space that surrounds them, but instead become inseparable from that space.'[49] Brown asserts that this minimisation of the diegetic human body results from popular cinema's tendency to 'increasingly feature prominent characters of a nonhuman

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[43] *The Skin of the Film*, 145.
[44] P. Gormley, *The New Brutality Film: Race and Affect in Contemporary Hollywood Film* (Bristol: Intellect Books, 2005), 12.
[45] A. Rogers, *Cinematic Appeals: The Experience of New Movie Technologies* (New York: Columbia University Press, 2013), 222.
[46] A. Wood, 'Encounters at the Interface: Distributed Attention and Digital Embodiments' in *Quarterly Review of Film and Video*, vol. 25, no. 3 (2008), 219-229.
[47] Elsaesser and Hagener foreground the centrality of 'haptic and embodied perception' in digital cinema. See T. Elsaesser and M. Hagener, *Film Theory: An Introduction Through the Senses* (London; New York: Routledge, 2010), 169.
[48] *Cinematic Appeals*, 224.
[49] W. Brown, *Supercinema: Film-Philosophy for the Digital Age* (New York: Berghahn Books, 2013), 2.

nature', while 'environments take on prominent roles' and human characters 'seem concomitantly to have unstable identities, which reach their most acute manifestation in the digital morph.'[50] Yet Brown's approach does not address the fact that embodied perception is itself mutable. As Rogers notes, 'conceptualisations of the body – and, with them, the contours of embodiment as well – are historically contingent and subject to change.'[51] To conceive of the digital image as simply less 'anthropocentric' is to elide how virtual technologies have engaged in and made visible the contingencies of embodied identification and sensation. This can be illustrated through the example of a virtual shot through the eyes of a character looking into a mirror, in relation to its analogue equivalent. While similar shots were possible before digital imaging, the necessity of the camera's physical presence coupled with the difficulty of erasing it in post-production meant that they simply could not be as spatially continuous with the embodied position of the seer.[52] In this context, and many others, a digitally augmented shot can in fact create an *enhanced* impression of phenomenological and embodied alignment with the character represented; engendering a sense of intersubjective presence rooted not in indexicality but in apparent embodied proximity.

Despite often figuring VR as a way of escaping ordinary embodiment, I argue that VR cinema does not dispense with the body, but both reflects and elicits shifts in its phenomenal relations to the (mediated) world. As digital experience becomes more ubiquitous, VR and Post-VR films variously reflect and provoke new perceptive possibilities. Indeed, they seem designed precisely to explore and approximate new ways of interfacing with the digital *through cinema*. They are often narrative as well as technical enactments of Bukatman's 'terminal identity' – in which SF texts across media 'construct a new subject-position to interface with the global realms of data circulation, a subject that can occupy or intersect the cyberspaces of contemporary existence.'[53] As such, they work to disrupt and rebuild our embodied, phenomenological relations to (and expectations of) narrative-aesthetic space and the characters within it.

Cinema: Ontology and Identity

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[50] Ibid.
[51] *Cinematic Appeals*, 10.
[52] Shilo McClean also points out how the virtual POV shot testifies to the enhanced narrational capabilities of digital imaging in cinema. See S. T. McClean, *Digital Storytelling: The Narrative Power of Visual Effects in Film* (Cambridge, MA: MIT Press, 2007), 53.
[53] *Terminal Identity*, 9.

As traditional approaches to the categorisation of cinema have arguably faded into obsolescence, a question repeatedly asked is whether cinema itself will do the same in an age of advancing digital ubiquity. Theorists such as Sobchack, Purse, David Rodowick, Andrew Darley and Shilo McClean have all conducted sustained analyses of the kinds of ontological, phenomenological and cultural shifts brought about by the inception of the digital audio-image in cinema.[54] However the profundity of such shifts, and their positive or negative impacts, are controversial. Jason Sperb for example explores the role of nostalgia in digital cinema,[55] while John Belton questions the oft-assumed radical impact of the digital turn, countering in particular its comparison to the shift to synchronous sound in cinema.[56] At the other extreme, analyses have arguably overstated the digital's impact on cinematic form and function. As Caroline Bassett notes, some film theorists 'argue that contemporary developments mean that the 150-year tradition of cinema has now reached its end… that there can be no productive convergence or exchange between cinema and other media forms brought about through digitalization, and no digital redefinition of cinema itself.'[57]

Discussions of digital cinema often cohere around a perceived displacement of the index, and thus of cinema's link to the 'real' which, however tenuous, has historically been seen as crucial to the form. Debates surrounding the essence of cinema since Bazin, and later Barthes, theorised the form in relation to photography[58] have returned with renewed resonance and redoubled controversy in the digital age.[59]As Rogers notes, '[b]oth the positive and the negative evaluations of digital cinema indicate that cinema's appeal

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[54] *Screening Space*; *Digital Imaging in Popular Cinema*; D. N. Rodowick, *The Virtual Life of Film* (Cambridge MA: Harvard University Press, 2007). A. Darley, *Visual Digital Culture: Surface Play and Spectacle in New Media Genres* (New York: Routledge, 2000); *Digital Storytelling.*

[55] *Flickers of Film*.

[56] J. Belton 'Digital Cinema: A False Revolution' in *October*, vol. 100 (Spring 2002), 98-114. Belton's article has been widely disputed given the extent of the shifts instantiated by digital technologies. See for example A. Gaudreault and P. Marion (T. Barnard trans.), *The End of Cinema?: A Medium in Crisis in the Digital Age* (New York: Columbia University Press, 2015), 4-5.

[57] Bassett cites for example T. Elsaesser, 'The Cinematic Apparatus: Typologies, Affinities, Ontologies (conference paper), Cinema and Technology International Conference, Institute for Cultural Research, Lancaster, 6-9/04/2005. See C. Bassett, *The Arc and the Machine: Narrative and the New Media* (Manchester: Manchester University Press, 2007), 166.

[58] A. Bazin (H. Gray trans.), *What is Cinema? vol. 1* (Berkeley: University of California Press, 1967); R. Barthes, 'The Third Meaning' in id. (R. Howard trans.), *The Responsibility of Forms: Critical Essays on Music, Art, and Representation* (New York: Hill and Wang, 1985), 41–62.

[59] For a thorough exploration of Bazin and Barthes' thinking in relation to digital film, see S. Shaviro, 'Emotion Capture: Affect in Digital Film' in *Projections*, vol. 1, no. 2 (Winter 2007), 63-82.

continues to be bound up with an understanding of authentic cinematic experience; however the meaning of this concept has shifted.'[60]

Drawing from Bazin, Lev Manovich asserts that cinema 'pretends to be a simple recording of an already existing reality – both to a viewer and to itself'; it endeavours to erase the traces of its production process and to disavow any suggestion that what we see has been constructed rather than recorded.[61] Notwithstanding that the resulting image 'was arrived at by photographing an already impossible space', constructed through such mediating factors as models, matte paintings and optical printing, cinema denies the nonexistence of the 'reality' onscreen.[62] Given this, he claims, the 'mutability of digital data impairs the value of cinema recordings as documents of reality.'[63] Similarly, Asbjoern Groenstad considers digital imagery a duplicitous forgery of (analogue) cinematic materiality in which audiences are 'twice duped', since '[n]ot only is the world on the screen – which the viewer processes as perceptually 'real' – not constituted by particles of actual reality, it is not even composed of chemicals and light but of a chain of computerized algorithms'. For Groenstad, digital cinema thus produces a Baudrillardian 'hyperrealism… in relation to what for a lack of a better term could be referred to as post-cinema.'[64]

Even if the dichotomisation of cinematic and digital images is, or has been, part of a broader cultural understanding of photographic images as real (or realist) and digital images as fake (or imminently falsifiable), such assumptions are often problematic both in terms of the phenomenological experience they engender and their actual technical basis. To align digital technologies with a loss of cinematic authenticity is problematic for a number of reasons, perhaps most obviously given prevalent independent filmmaking practices – associated, for example, with Dogme 95 – in which the use of compact, mobile digital cinematography portends to enhance authenticity or 'truth'.[65] Regardless of the ontologies and functions of analogue and digital imagery, the suggestion that indexicality defines the phenomenological experience of cinema, and that the digital audio-image is necessarily experienced as radically different, are problematic; as are essentialist arguments about cinema's identity, or loss of identity through digitisation.

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[60] A. Rogers, '"You Don't So Much Watch It As Download It": Conceptualisations of Digital Spectatorship' in *Film History: An International Journal*, vol. 24, no. 2 (2012), 231.
[61] L. Manovich, 'What is Digital Cinema?' in P. Lunenfeld (ed.), *The Digital Dialectic: New Essays On New Media* (Cambridge, MA: MIT Press, 1996), 178.
[62] Ibid.
[63] Ibid., 192.
[64] A. Groenstad, 'Back to Bazin? Filmicity in the Age of the Digital Image' in *Popular Culture Review*, vol. 13, no.2 (2002), 18.
[65] "You Don't so Much Watch It as Download It', 226.

Theorists such as Philip Rosen, Niels Niessen and Tom Gunning, for instance, have advanced compelling arguments which complicate the idea of indexicality as essential to the identity of cinematic form, and the perceived disparity between the abilities of digital and analogue imaging to capture the 'real'.[66] As Gunning points out, 'the rows of numerical data produced by a digital camera and the image of traditional chemical photography are both indexically determined by objects outside the camera.'[67] Moreover, he suggests, the idea that only *digital* mediation 'transforms its data into an intermediary form' is pernicious in its disavowal of how photography (and cinematography) mediates the profilmic object in the process of capturing it: through lens, film stock, exposure time, processes of development, and a host of other variables.[68] At a cultural rather than ontological level, Rosen complicates George Legrady's assertion that, however much it may resemble the product of an analogue camera, a digital photograph constitutes 'a *simulated* photographic representation.'[69] If this is significant, Rosen asks, 'how is it that a digital camera can be sold not as a displacement, but as a replacement for a conventional still camera?'[70]

On cinema in particular, Rodowick questions whether the replacement of the analogue with the digital *matters* if the resultant images are 'effectively indistinguishable'.[71] Indeed, it is important to assert the continuities as well as the differences between analogue and digital cinematic address. While it is easy to emphasise the impact of overtly visible digital special effects, Prince asserts that 'they are not the most important manifestation of [cinema's] digital turn.'[72] Indeed, the majority of digitally edited images in cinema are, as it were, 'invisible'; spectacular digital effects are not their predominant manifestation.[73] More central, Prince suggests, are the subtler ways in which the 'digital is producing tremendous changes that are affecting the role and function of such traditional domains as cinematography and, more deeply, the viewer's perception of the nature of cinema.'[74]

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[66] P. Rosen, *Change Mummified: Cinema, Historicity, Theory* (Minnesota: University of Minneapolis Press, 2002); N. Niessen, 'Lives of Cinema: Against its 'Death'' in *Screen*, vol. 52, no. 3 (Autumn 2011), 307-326; T. Gunning, 'What's the Point of an Index: Or, Faking Photographs' in K Beckman and J. Ma (eds.), *Still Moving: Between Cinema and Photography* (Durham: Duke University Press, 2008).

[67] 'What's the Point of an Index', 25.

[68] Ibid., 25.

[69] G. Legrady, cited in *Change Mummified*, 308.

[70] Rosen moreover cites the broadly accepted role of the digital photograph in producing 'truthful' record – in journalism, among other contexts. See Ibid.

[71] *The Virtual Life of Film*, 107.

[72] S. Prince, 'The Emergence of Filmic Artifacts: Cinema and Cinematography in the Digital Era' in *Film Quarterly*, vol. 57, no. 3 (Spring 2004), 24.

[73] McClean concurs that 'digital technologies *are* having a profound impact on the industry and much of the blame laid at the door of DVFx would be applied more appropriately to other digital transformations.' See *Digital Storytelling*, 217.

[74] 'The Emergence of Filmic Artifacts', 26.

Similarly countering the emphasis on radical visual difference, Rodowick states that in the age of digital cinema '[w]e confront something that looks like photography, and continues to serve many of its cultural functions', yet at the same time 'a felt change is occurring, or perhaps has occurred, in our phenomenological relationship with these images.'[75]

For Manovich, this change is profound and essential. He suggests that the digital image has wholly redefined cinema as 'a particular case of animation which uses live-action footage as one of its many elements.' So, in retrospect, 'twentieth century cinema's regime of visual realism, the result of automatically recording visual reality, was only an exception, an isolated incident in the history of visual representation.'[76] Manovich reads digital images as synthetic spectacle, casting their artificiality against Bazinian paradigms of photographic realism in which cinema makes its referent present to us.[77] However, Bazin never states that this is by virtue of the index,[78] and in fact Bazin's 'myth of total cinema' – a theorisation of the desire for cinema to produce total, seamless illusion[79] – is deeply resonant with the simulational potential of the digital audio-image. As Gunning points out, although 'the digitally produced new media… lack the indexical claim of photography, they absolutely claim ability to fashion a counter-reality through perceptual stimulation.'[80]

Moreover, the aesthetic paradigms of these digital 'counter-realities' are dependent upon existing formal paradigms. Prince mobilises the concept of 'perceptual realism' to describe how even the most fantastical digital special effects overwhelmingly conform to verisimilitude in that they 'structurally [correspond] to the viewer's audiovisual experience of three-dimensional space'. Perceptual realism can 'encompass both unreal images and those which are referentially realistic', and as such 'unreal images may be referentially fictional but perceptually realistic.'[81] Despite the complications involved with aligning a formal 'realist' paradigm with ordinary perceptual experience, Prince's approach is of value in that it argues for a preserved 'realism' independent of the index, thus shifting the standard for realism from the independent existence of the photographed object to the phenomenological perception of the spectator.

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[75] *The Virtual Life of Film*, 98.
[76] L. Manovich, 'What is Digital Cinema?' [available at http://manovich.net/index.php/projects/what-is-digital-cinema, accessed 29/02/2016].
[77] L. Manovich, *The Language of New Media* (Cambridge, MA.: MIT Press, 2001), 192-193.
[78] See 'What's the Point of an Index?', 46-47.
[79] A. Bazin 'The Myth of Total Cinema' in id., *What is Cinema? vol. 1*, esp. 21.
[80] 'What's the Point of an Index?', 47.
[81] S. Prince, 'True Lies: Perceptual Realism, Digital Images, and Film Theory' in *Film Quarterly*, vol. 29, no. 3 (Spring 1996), 32.

Conversely, Julie Turnock asserts that the 'realism' of CG effects is based not on our experience of the phenomenal world, but on existing cinematic paradigms – specifically, the look of 1970s cinematography, the dominant aesthetic at cinematic CGI's moment of inception.[82] Scholars such as Scott McQuire[83] and Rodowick[84] argue that standards of photorealism are based on a more general, industrialised 'camera reality' which, rather than any 'objective' realism, remains the standard against which CG effects are judged. Such approaches undermine the assumption that digital images are experienced as radically inconsistent with our existing perceptual understandings of cinematographic space, and apprehend how old media conventions and codes inescapably shape our engagements with the new – notwithstanding that these paradigms shift in relation to new formal-aesthetic practices. While McClean for instance notes that traditional analogue techniques 'have set the standard for how the virtual camera is used', she also points out that 'the virtual camera opens up whole new vistas of creative opportunity and room for theoretical analysis.'[85] The tools and conventions of cinematic language and its phenomenal address are shaped through and in relation to both existing optical paradigms and the new affordances of digital techniques.

Regardless of whether and how they employ digital effects, VR and Post-VR films reflexively bear witness to shifting conditions of production and exhibition at their contemporary moments. At the same time, they often complicate the digital-analogue 'rift' and undermine its reduction to a matter of alternate visual regimes by obscuring or contradicting the formal provenance of their VR sequences. *Tron*, for instance, largely uses analogue animation to create a diegetic VR which appears to be computer-generated, while *Strange Days* represents VR experience through wholly analogue means. In *The Matrix*, scenes in the diegetic 'real world' are far more often – and more markedly – computer-generated than are the representations of VR. Moreover, VR and Post-VR cinema reflexively negotiates cinema's analogue-to-digital shift through the diegetic replacement of the 'real' with the 'virtual', increasingly questioning the extent to which such a distinction is possible or necessary. While early VR films *Tron* and *The Lawnmower Man* tend to advocate and visualise a clearer separation of 'real' and 'virtual' experiences, later examples such as *Strange Days* and *The Matrix* figure the distinction as aesthetically and diegetically less clear-

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[82] J. A. Turnock, 'The ILM Version: Recent Digital Effects and the Aesthetics of 1970s Cinematography' in *Film History: An International Journal*, vol. 24, no. 2 (2012), 158-168.
[83] S. McQuire, 'Impact Aesthetics: Back to the Future in Digital Cinema?' in *Convergence*, vol. 6, no. 2 (June 2000), 41-61.
[84] D. N. Rodowick, 'Paradoxes of Perceptual Realism' in id., *The Virtual Life of Film*, 99-107.
[85] *Digital Storytelling*, 51.

cut. In *Avatar* and *Source Code* the narrative-aesthetic distinctions between digital mediation and 'immediate' experience are shattered. In their respective contemporary moments, they thus focalise what Rosen identifies as the 'sometimes explicit, sometimes implicit levels of hybridity in the register of the digital image', which makes 'claims for a ruptural historical break in representation more difficult, or at least more complicated, than they may seem at first.'[86]

Throughout the inception of the digital audio-image, cinema retains an enduring impetus to represent (experiential) reality. The VR and Post-VR subgenres are particularly redolent of the importance, and the endurance, of cinema's relation to the profilmic: to 'realism' as well as fantasy. This is not new, as Bukatman points out when he states that 'cinema always combines the material and the immaterial, the solid and the phantasmic, the permanent and the ephemeral, the rational and the uncanny.'[87] From *Tron*'s computer world 'beyond the interface', to the prophesied future of 'real' VR in *The Lawnmower Man*, to the diegetic reality behind a wall of code in *The Matrix*, allusions to the real *through the fantastic* are key to the subgenre's science-fictionality. Grappling with the ontological uncertainties of (digital or analogue, real or virtual) experience, VR and Post-VR films are not only invested in the display of technological wonders, but in the production of diegetic counter-realities that variously refract their increasingly (digitally) mediated contemporary cultures.

As Alain Badiou notes, SF in particular 'is obliged to construct a world, and by this very token, to elicit a comparison with the one that we already know.'[88] By virtue of their specific narrative premises, however, VR and Post-VR films do not always need to pretend to the reality which we know, but to a science-fictional reality of which we must become convinced (at least to the extent that we may suspend disbelief). Thus spectacle is not only anchored and contextualised by (perceptual or cinematographic) aesthetic verisimilitude, but by a specific kind of narrative justification that legitimises physically impossible, improbable and fantastical events which are not only technically but *diegetically* other than the quotidian. As such, the VR and Post-VR subgenres are uniquely poised to test the boundaries of cinematic representation; in narrative context, even the most wilfully abstract special effect does not wholly displace film's established function to represent – through extrapolation, exaggeration and allusion – our experience of the contemporary world.

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[86] *Change Mummified*, 303.
[87] S. Buktaman, *Matters of Gravity: Special Effects and Supermen in the 20th Century* (Durham, NC: Duke University Press, 2003) 121.
[88] A. Badiou [2004] (A. Toscano trans.), 'Dialectics of the Fable' in *Science Fiction Film and Television*, vol. 1, no. 1 (Spring 2008), 16.

Digital Cinema and (Other) Media

As Whissel notes, spectacular digital effects 'are less harbingers of the death of cinema than they are the artifacts of the cinema's ongoing engagement with new technologies.'[89] The VR and Post-VR subgenres bring this into relief, simultaneously testifying to the endurance of cinema as a (representational) form and reflexively refiguring its narrative-aesthetic modalities in relation to new technologies. It is salient to note that cinema's formal history has been repeatedly punctuated by moments of technological change which have disrupted and reshaped its aesthetic and narrative paradigms, instantiating (or at least threatening) successive crises of formal identity. Yet through the inception of synchronised sound, colour, widescreen, and the digital turn, cinema has retained its status as *cinema* – a medium which retains relevance and formal specificity not despite, but *because of*, its capacity for ongoing technological reformation.

In the digital age, Rodowick notes, 'the old (cinematic) and the new (electronic and digital) media find themselves in a curious genealogical mélange whose chronology is by no means simple or self-evident.'[90] Cinema's formal endurance through its digital transubstantiation consists greatly in its mutually transformative, dialogic relation to digital media, and its ability to formulate new kinds of spectatorship in relation to differently mediated cultural landscapes. Throughout the inception of digital media and imaging technologies, VR and Post-VR films' reflexive processes of narrative and aesthetic self-transformation bespeak an impetus to continually reinvent cinema, and thus to maintain Hollywood cinema's status as a culturally relevant, (technologically and narratively) innovative, and commercially viable medium.

In exploring how this operates, I engage in a broad discursive field on how old and new media interact: for instance Bolter and Grusin's (1999) concept of 'remediation',[91] Henry Jenkins on media convergence,[92] Chuck Tryon on cinema convergence,[93] and King, Tanya Krzywinska and others on the mutual formal influence between cinema and video

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[89] *Spectacular Digital Effects*, 184.
[90] *Virtual Life of Film*, 184.
[91] In which new media borrow from and adapt older media, and vice versa. See J. D. Bolter and R. Grusin, *Remediation: Understanding New Media* (Cambridge MA: MIT Press, 2000).
[92] H. Jenkins, *Convergence Culture: Where Old and New Media Collide* (New York: New York University Press, 2006).
[93] C. Tryon, *Reinventing Cinema: Movies in the Age of Media Convergence (*New Brunswick: Rutgers University Press, 2009).

games.[94] I bring these to bear on how VR and Post-VR films refract and intervene in cinema's developing relationship with digital media throughout a period in which, as Laura Mulvey notes, the 'specificity of cinema, the relation between its material base and its poetics dissolves while other relations, intertextual and cross-media, begin to emerge.'[95] Whether imagining VR largely in cinema's own image (as in *Strange Days*), or using VR to question, approximate or appropriate the modalities of new, often convergent media (as in *Tron*),[96] the cinematic depiction of digital spaces allows these films to gain a kind of mastery of representation over digital media forms. VR and Post-VR cinema is uniquely poised to emphasise and extend cinema's audiovisual potential through the narration and sensorial evocation of new media experiences. They thus both instantiate and ameliorate the impact of digital media on the modalities of cinema and spectatorship, as the former addresses and produces differently mediated publics.

For Paul Young, the extradiegetic impact of digital media technologies put Hollywood cinema on the defensive. In his study of other-media representations in cinema, Young reads films like *Tron* and *The Lawnmower Man* as 'cyberphobic' narratives which are symptomatic of 'the compromised position in which the American cinematic institution finds itself regarding its own reception by the increasingly diverse, mass-mediated publics of the '90s.'[97] To 'compete for a piece of this multimediated spectator' Young states, 'studios have no choice' but to gesture towards other media, to open up to contemplation and discussion of contemporaneously new, non-cinematic media forms. For Young, these fleeting moments of reflexivity contradict the films' narratives; offering 'glimpses of the kind of counterpublic cinematic experience that the films themselves would construct as wholly opposed to the nature of film.'[98] Yet VR and Post-VR cinema exhibits a far more ambivalent attitude to media technologies, reflecting a form less wary of a digital 'threat' than it is concerned to enhance and promote the intersections between cinema and other media. As such I argue that many approaches to the films analysed – and to digital cinema more broadly – evince problematic assumptions which often function to undergird the formal specificity of cinematic experience, at the expense of a deeper understanding of how cinema converges – diegetically and extradiegetically – with other media.

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[94] G. King and T. Krzywinska (eds.), *ScreenPlay: cinema/videogames/interfaces* (London: Wallflower Press, 2002).
[95] L. Mulvey, *Death 24x a Second: Stillness and the Moving Image* (London: Reaktion Books, 2006), 18.
[96] In relation to VR films which appropriate gaming, I mobilise discourse which explores the intersections of film and game aesthetics, narrative and affective techniques, such as M. J. P. Wolf (ed.), *The Video Game Explosion: A History from PONG to Playstation and Beyond* (Westport, CN: Greenwood Press, 2008).
[97] P. Young, *The Cinema Dreams its Rivals: Media Fantasy Films from the Radio to the Internet* (Minneapolis: University of Minnesota Press, 2006), 202-203.
[98] Ibid., 215.

(Digital) Spectacle and (SF) Cinema

Throughout this thesis, I maintain that the science-fictionality of VR and Post-VR narratives is intrinsically dependent upon the operations of spectacular (digital and analogue) effects and narrative, which mutually and indivisibly shape cinematic experience. While spectacle in general is often considered to arrest narrative progression, digital effects in particular are often considered to enhance this sense of disruption. Darley, for example, sees the inception of digital spectacle in cinema as heralding a new dominance of technique and image over content and meaning, triggering sensual gratification through a projected aesthetic of visual excess which 'threatens to overwhelm traditional concerns with character and story'.[99]

Such dichotomous approaches to narrative and spectacle often work to advocate cinema's propensity for display as a distinct formal characteristic. This also seems to motivate Brooks Landon's assertion that SF cinema's 'special effects can be thought of as existing not to support the narrative or the plot, but to provide their own formal rhythm and logic.'[100] Landon addresses attitudes to SF film as inferior to what is perceived as more sophisticated, cognitive or 'intelligent' SF literature.[101] On discursive approaches to the two forms, Landon points out that 'we tend to erase many of the differences with a single vocabulary directed toward the story each conveys'; a tendency further pronounced when SF is the object of discussion.[102] In response, Landon instantiates an approach which extends beyond 'the metaphoric function of action, characterization, and icons' to include a 'metonymic consideration of the technologies and implications of the film production practice itself.'[103] While Landon is right to propose a reading practice more attuned to the formal specificities of popular SF cinema, and more open to its contexts of production, his ostensibly prophylactic swing in favour of spectacle simply inverts the hierarchy, and

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[99] *Visual Digital Culture*, 103.
[100] B. Landon, 'Diegetic or Digital?: The Convergence of Science-Fiction Literature and Science-Fiction Film in Hypermedia' in *Alien Zone II*, 41.
[101] Landon cites Peter Nichols' entry on cinema in *The Science Fiction Encyclopedia* which states that, in comparison to SF literature, SF film 'uses a much narrower range of themes', stresses 'the irrational and the fantastic', 'expects much less intelligence in its audience' and 'is no more sophisticated than was genre magazine SF in the 1930s.' He also cites Frederick Pohl's *Science Fiction: Studies in Film* which, Landon states, 'inherently stacks the deck against any even handed comparison of the two media, always judging the immediacy and excitement of film… against the intellectual engagement of literature.' See B. Landon, *The Aesthetics of Ambivalence: Rethinking Science Fiction Film in the Age of Electronic (Re)Production* (Westport, CT: Greenwood Press, 1992), 4-7.
[102] Ibid., 7.
[103] Ibid., xxiii.

necessarily preserves a dichotomy between special effects and narrative. Even when the oft-maligned spectacular dimension is elevated to a position of intentional priority, I contend that such an opposition remains unhelpful, precluding the symbiosis of narrative and spectacle.

Similar approaches are evident in many other accounts of SF cinema since the late 1980s. Kuhn, for instance, asserts that when cinematic display becomes 'a prominent attraction in its own right', narrative, plot and character tend to be eclipsed so that '[t]he story becomes the display, and the display becomes the story.[104] Moreover, such approaches often consider special effects to not only trump narrative, but to actively contradict it. For Landon, the 'limited' narrative capabilities of SF film are outstripped by and subordinated to the increasing dominance of visual effects, which operate as 'self-reflexive celebrations of film technology itself, as a kind of counter-narrative that often conflicts with the ostensible discursive narrative.'[105] Michelle Pierson concurs with Landon's assertion that SF's temporally disruptive, 'show-stopping' special effects represent a counter-narrative, asserting that 1990s SF cinema offered the chance to take part in digital SFX – rather than narrative – as a cultural event.[106] Thus, for Pierson, what is important is not 'the power of special effects to represent the other-worldly technologies of future societies, but the power of special effects to present the awesome imaging capabilities of special-effects technologies themselves.'[107] Yet I question the idea that special effects technologies cannot do both. In VR and Post-VR cinema, diegetic other-worldly technologies are *themselves* engaged in the production of spectacular experiences, in ways which mirror and enhance their often reflexive displays of special effects technologies at an extradiegetic level.

Moreover, this dichotomy has often cohered around a consideration of *affect* as antithetical to narrative. For Kuhn, '[b]ig-budget science-fiction extravaganzas offer the total visual, auditory and kinetic experience of the *Gesamtkunstwerk*: the spectator is invited to succumb to complete sensory and bodily engulfment.'[108] Similarly, in 1987, Sobchack argued that while special effects have always been a central feature of the SF film, 'they now carry a particularly new affective charge and value.'[109] Sobchack argues that in SF films

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[104] A. Kuhn, 'Introduction' in id. (ed.), *Alien Zone II*, 5.
[105] 'Diegetic or Digital?', 39.
[106] M. Pierson, 'CGI Effects in Hollywood Science-Fiction Cinema 1989-1995: The Wonder Years' in *Screen*, vol. 40, no. 2 (Summer 1999), 158.
[107] Ibid., 165.
[108] *Alien Zone II*, 5.
[109] *Screening Space*, 282.

from the late 1970s into the 1980s, like *The Last Starfighter* and *Tron*, special effects figure diegetic technologies as hyper-subjective, grandiose and distinctly postmodern displays of affect.[110] This 'postmodern euphoria' is 'structured and represented not as the intense feeling and expression of a *centered subject constructed in time*, but rather as the intense feeling and expression of a *decentered subjectivity objectified in space*.'[111] Sobchack thus interprets shifts in the visual paradigms of SF films as the downplaying of (temporal) narrative in favour of a focus on (spatial) spectacle, in which the motivated actions of characters are subordinated to a focus on the decentred experience of spatial intensity.

Although spectacular special effects are certainly a key attraction of popular cinema, Kuhn, Darley, Landon and others institute an adversarial relation between spectacle and narrative which I find to be as problematic as it has been pervasive. There is a general discursive agreement that spectacular special effects produce moments of self-reflexivity: a conscious awareness or questioning of the ontology of the image.[112] The more controversial question is whether this necessarily produces a significant break in diegetic coherence; whether the foregrounding of display produces a conflict between the construction of an immersive and internally coherent diegetic 'reality' and the visible *unreality* of the spectacle. I argue that cinema's appeals to technological wonder – elicitations of 'how did they do that?' – do not necessarily 'rupture' narrative beyond the fundamental and ever-present awareness that the spectator is watching a film. As I demonstrate, VR and Post-VR cinema provides particularly strong grounds on which to counter this perspective, given the symbiosis of diegetic technologies of simulation and the technologies through which they are displayed.

With hindsight, it is perhaps the radical novelty of successive generations of visual effects through the 1970s to the 1990s which engendered this common dislocation of spectacle. Such approaches, after all, establish patterns through which to explore some of the reflexive, extradiegetic levels on which digital effects operate. The naturalisation of these kinds of images in contemporary culture, however, provides a new lens through which to consider digital (and, in fact, analogue) images both phenomenologically and in relation to narrative. As McClean astutely notes,

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[110] From *Close Encounters of the Third Kind* (Spielberg, 1977) onwards, Sobchack states, 'special effects in mainstream SF have been transformed from signs of a rational and objective science and technology to representations of a joyous, and "sublime," intensity – thematically linking postmodern culture's new "detached", "free-floating," and "liberated" sense of emotional transcendence with the transcendental.' See ibid., 287-288.

[111] Ibid., 282.

[112] Cornea however differentiates between the 'meditative' response engendered by special effects in films like 2001 and the blockbuster spectacles of films post-*Star Wars*. See *Science Fiction Cinema*, 248-250.

> It would be unusual to argue in this age that the spectacularity of colour in film is narratively arresting and impossible to argue that it is *always* self-reflexive and distracts from narrative cohesion. Accordingly, in relation to much of current DVFx practice it should be noted that the demographic audience of the typical Hollywood blockbuster film – males who are age 16 to 24 – has never known films without CG images. [113]

From a contemporary perspective, a point at which digital effects have long inflected our modes of viewing cinema, a focus on the radical difference of the digital image, or how it obscures or devalues materiality, risks eliding the narrative-aesthetic specificity of individual films themselves. After all, the digital image and its attendant aesthetics now constitute the rule rather than the exception in popular cinema across genres. While it is still true that spectacular digital imagery in itself is often a significant attraction, it remains the case that 'relevance to storytelling… is the crux of understanding the specific purpose of spectacular moments, no matter how they are contrived.'[114]

In the 2000s, more studies emerged which challenge the sequestration of narrative and spectacle. Wood for instance notes that 'digital effects… most specifically when they extend the duration of spectacle or give extended movement to spatial elements, introduce a temporal component to spaces.'[115] In his identification of a contemporary 'posthuman cinema' in the 1990s, Roger Warren Beebe argues that digital effects and spaces increasingly exist as narrative agents which can displace the dominance of human characters.[116] As digital aesthetics have become more naturalised, it seems that their perceived disjunction from narrative has diminished. By virtue of analysing predominantly contemporary examples, however, many approaches seem to imply that the narrative function of digital spectacle is a relatively new phenomenon. Mulvey for example posits that in the (now fading) age of the DVD, the sense of a 'technological uncanny' initially created by special effects has given way to a sense of 'technological curiosity.'[117] However, I suggest that even in early (that is, 'pre-DVD') VR films, spectacular images oscillate between the uncanny and the curious, opening up to reflexive significance in ways which remain under-acknowledged. By analysing *Tron* and *The Lawnmower Man*, for example, I

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[113] *Digital Storytelling*, 223.
[114] Ibid., 219.
[115] Wood, A., 'Timespaces in Spectacular Cinema: Crossing the Great Divide of Spectacle versus Narrative' in *Screen*, vol., 43, no.2 (Winter 2002), 373.
[116] R. W. Beebe, 'After Arnold: Narratives of the Posthuman Cinema' in V. Sobchack (ed.), *Meta-Morphing: Visual Culture and the Culture of Quick-Change* (Minneapolis: University of Minnesota Press, 2000).
[117] *Death 24x a Second*, 27.

demonstrate that even the earliest instances of digital spectacle in cinema bear further analysis in terms of their reflexive narrative functions.

Central to this thesis, then, is the recognition that it is still important to emphasise spectacular-narrative continuity in approaches to popular film, and in particular to SF cinema. As Steve Neale notes, 'all narratives involve the representation of events and their agents', the primary purpose of which 'is to provide links in a narrative chain (a plot) on the one hand, and to occasion a range of aesthetic effects (like suspense, surprise and pathos) on the other.'[118] Neale moreover asserts that 'the intricate intercalation of different forms, kinds and layers of knowledge, belief and judgement' is key to the specific lure of SF.[119] The general rules, purpose and importance of narrative hold true even for the most spectacular effects films, and SF cinema is moreover engaged in the careful balancing of the diegetically possible and the fantastic, undertaking a process of persuasion through the acknowledgement and assuagement of their own improbability. John Carpenter's *The Thing* (1982), for example, is concerned 'not only to display the latest special effects, but also to display an awareness that they *are* the latest.'[120] At the same time, the film is reflexively 'involved both in establishing its own credibility, and in establishing its own regime of credence – the rules, the norms and the laws by which its events and agents can be understood and adjudged.'[121] Key to this is how the 'exposition, explanation and the establishment of internal norms are coincident with the negotiation of a position of credibility – and the acknowledgement of positions of incredulity and doubt.'[122] In cinematic SF narratives like *The Thing*, Neale points out that characters' disbelief is reflexively fostered in the spectator; when MacReady sees the monster (and the spectator, coincidently, sees the effect), his line: "You've got to be fucking kidding!" exemplifies the acknowledgement of awed incredulity. In this context, the special effect itself articulates SF's persuasive processes of disbelief, questioning and eventual acceptance.

VR and Post-VR films undertake these formally specific science-fictional processes in particularly reflexive ways. Character-spectator surrogacy works on an intensified level, since not only are character and spectator both faced with potentially unbelievable, awe-inspiring phenomena, they are also both engaged in *diegetically* technologically constructed experience. Like us, characters are put into the presence of phenomena which are not 'of

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[118] S. Neale, "You've got to be Fucking Kidding!': Knowledge, Belief and Judgement in Science Fiction' in S. Redmond (ed.), *Liquid Metal: The Science Fiction Film Reader* (London: Wallflower Press, 2004), 11.
[119] Ibid.
[120] Ibid., 15.
[121] Ibid., 13.
[122] Ibid.

this world.' Whether through DVFX or cutting-edge analogue techniques, the audiovisual pleasure of VR effects sequences are enhanced by and bound up in the fact that they function to legitimise characters' belief in the power of *technology* as well as our own. To dichotomise the narrative and spectacular operations of the VR film, therefore, is particularly untenable given the inextricability of diegetic VR's concomitant impressions on the phenomenological praxis of spectator and character.

(Trans)Media Narratives

The common consideration of digital special effects as anti-narrative, or narrative-arresting, resonates with a broad 'anti-narrativity' ascribed to digital media forms.[123] Research on narrative and storytelling throughout the digital age has reflected an increasing need to theorise the ways in which narrative operates across, and in relation to, convergent media. In her 1999 book *Hamlet on the Holodeck*, for example, Janet Murray connects AI research with cultural forms from cinema to games, literature to television. In doing so, she explores the propensity for computational modes to create new kinds of narrative characterised by immersion, agency and transformation – which she identifies as characteristic of (but not unique to) the form.[124] In 2007, Bassett argued that narrative remains at 'the heart of the operations of everyday life and everyday culture within a world where digital technology is becoming pervasive', and that to 'consider contemporary narrative formations *is* to engage with contemporary techno-culture.'[125] Even more recently, in *Storyworlds across Media*, diverse scholars explore the increasing multimodality of stories across media in the contemporary age, exploring how old and new media produce different kinds of 'storyworlds'[126] which elide formal containment, proffering new experiences which demand new narratological approaches.[127]

In a similar vein, I explore how VR and Post-VR films refract this increasing multimedia narrative hybridity. Many are deeply inflected by multimedia convergence both in that they are often part of larger transmedia franchises (especially *Tron* and *The Matrix*),

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123 See for example E. Rose, 'Hyper Attention and the Rise of the Antinarrative: Reconsidering the Future of Narrativity' in *Narrative Works*, vol. 2, no. 2 (2012), 92-102.
124 J. Murray, *Hamlet on the Holodeck: The Future of Narrative in Cyberspace* (Cambridge, MA: MIT Press, 1997).
125 *The Arc and the Machine: Narrative and the New Media*, 8.
126 The use of 'storyworld' rather than 'narrative' reflects contemporary shifts in narratology, wherein emphasis has shifted to the activity of media users in substantiating narrative 'worlds' beyond the text. See M. Ryan and J. Thon (eds.), *Storyworlds Across Media: Towards a Media-Conscious Narratology* (Lincoln: University of Nebraska Press, 2014), 1.
127 For example by exploring transmedia storytelling through comic books, video games and cinema, contributors 'take the deliberate step of placing narrative at the center of media convergence.' See Ibid., 2.

and moreover in that their premises demand sustained engagement with the experiential and narrative modalities of new media technologies such as networked computing and video games. In exploring this, I draw from existing discourse on video games, computing and the internet (particularly when read in relation to cinema).[128] Through analysing, for example, the narrative approximation of video game experience through such devices as simulated interactivity and repetitive narrative, I call attention to the multifaceted, dialogic and occasionally prescient ways in which VR and Post-VR films reflexively refigure cinematic narrative alongside and in relation to their aesthetic strategies.

From VR to Post-VR

In chapter one, I examine *Tron*: the very first example of Hollywood VR cinema. Preceding the propagation of VR as a popular-cultural concept, I argue that *Tron* is deeply engaged in mapping the phenomenological paradigms of VR and the computer-generated image. Central to this process is *Tron*'s sustained and evocative transmedia dialogue between (pre-classical) cinema and video games. While narrative and aesthetic elements operate to evoke the modalities of contemporary (and future) gaming, they simultaneously produce a reflexive negotiation of *cinema's* past and future.

In chapter two I analyse *The Lawnmower Man*: the first self-proclaimed VR film. I explore how the film's production was greatly inflected by developments in VR both as an embryonic real technology and as a cultural imaginary. I counter readings of *The Lawnmower Man* which pitch its ostensible narrative 'VR-phobia' against its exultant employment of digital special effects, and complicate approaches to cinematic SF (including *The Lawnmower Man*) which bespeak a resistance to the affective and popular address of special effects. Rather, I argue that the film's affective *and* cognitive science-fictionality are dependent upon its aesthetic depiction of VR – through which it offers, at its contemporary moment, the closest alternative to 'real' VR, and the most sustained narrative exploration of its utopian *and* dystopian potentialities.

Chapter three concerns *Strange Days*, the only film in this study which wholly eschews digital effects in favour of an analogue-imaged VR. Moreover, the film does not

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[128] For example L. Gurevitch, 'The Cinemas of Interactions: Cinematics and the 'Game Effect' in the Age of Digital Attractions' in *Senses of Cinema*, issue 57 (December 2010) [available at http://sensesofcinema.com/2010/feature-articles/the-cinemas-of-interactions-cinematics-and-the-%E2%80%98game-effect%E2%80%99-in-the-age-of-digital-attractions/, accessed 01/01/2016]; M. J. P. Wolf, 'Inventing Space: Toward a Taxonomy of On- and Off-Screen Space in Video Games' in *Film Quarterly*, vol. 51, no. 1 (Autumn 1997), 11-23.

directly represent contemporary digital media and cultures to the extent that might be expected of a 1995 VR film. My analysis explores this ostensible lacuna, interrogating how the film is, in fact, deeply resonant with contemporary cultural mythologies and discourses surrounding the digital. I explore how *Strange Days* evinces an ambivalent preoccupation with diverse forms of mediation, communicated both through its reflexive narrative and the special effect presentation of its diegetic VR technology.

In chapter four I turn to perhaps the most iconic, and certainly the most critically analysed example of Hollywood VR cinema: *The Matrix*. In endeavouring to produce a fresh perspective on the film, I draw attention to three dualities which operate within the film's narrative-aesthetic whole: between mind and body, narrative and spectacle, digital and cinematic. In problematizing the fixity of such categories, I question the oft-assumed Cartesianism of *The Matrix*'s narrative, given how it interacts with the film's visceral SFX to progressively challenge and problematise the ostensible premise of mind-body division. Moreover, while *The Matrix*'s engagement with digital media is often emphasised in analyses, I demonstrate that it is also very much a film about cinema itself.

The turn of the century saw a decline in Hollywood representations of VR. Even the sequels to *The Matrix* were set largely in the diegetic 'real' world, while another film – *Vanilla Sky* (Cameron Crowe, 2001) – relegates VR to a plot twist in which protagonist David's life is ultimately revealed to have been a simulation. After a dearth of VR representations spanning almost a decade, however, films such as *Avatar* and *Source Code* variously revisit and develop the conventions of the VR subgenre while, paradoxically, they testify to the outmodedness of pre-millennial concepts of 'virtual reality' itself. While VR cinema often unsettles the boundaries between real and virtual, digital and material, Post-VR cinema dispenses with such dichotomies altogether. Both present technologically enabled forms of (re)embodiment into spaces which, while mediated to an overt degree, are ontologically inseparable from the diegetic 'real'. Instead of figuring digitally mediated experience as simulation, their represented technologies reflect the extent to which digital encounters have become integral to everyday, embodied experience – and no longer seem to lack ontological gravity. As Denise Carter noted in 2005, 'cyberspace is no longer distinct and separate from the real world. It is part of everyday life, as [virtual] relationships are becoming embedded in everyday life.'[129]

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[129] D. Carter, 'Living in Virtual Communities: An Ethnography of Human Relationships in Cyberspace' in *Information, Communication & Society*, vol. 8, no. 2 (2005), 164.

In chapter five I examine *Avatar* which, like the VR subgenre, remains preoccupied with the novel pleasures of special effects, and yet has rejected the real-virtual schism. I mobilise contemporary discourse on the postdigital to argue that *Avatar* refracts a culture increasingly bored with distinctions between real and virtual, technology and nature, old and new media. I analyse its ground-breaking motion capture and 3D technologies in terms of their reflexive narrative functions, to argue that *Avatar*'s particular kind of Hollywood 'post-digitality' manifests in the narrative excision of its overtly spectacular spaces from the quotidian. Its setting in a fantastical yet ontologically 'real' otherworld legitimises its use of special effects technologies to imagine a world in which polarisations of nature and technology, material and digital, real and virtual, do not apply.

My final chapter examines *Source Code* as an example of a growing Hollywood trend for complex, multimodal narratives. Critically engaging with existing approaches to this phenomenon, I argue that the film's particular narrative strategy is deeply intertwined with its aesthetic regime and sub-generic context. By advancing a phenomenological approach to *Source Code*'s parallel universe narrative, I explore how the film foregrounds the centrality of embodied perception at all levels of mediated experience. In its assumption, breaking and rebuilding of narrative-aesthetic expectations, I argue, *Source Code* engenders a critical reflection on the ubiquity of mediation, and idealises mediated action which is worldly, material and meaningful.

Chapter One

Rethinking the 'Digital' in *Tron*: Spectacular Narrative and Transmedia Dialogue

Released in 1982, Steven Lisberger's *Tron* is the first film to explore the concept of fully embodied immersion in a diegetic digital world. Predating even the term 'virtual reality', the film opened onto 'a whole new thematic territory, namely the relationship between the real world and an electronic simulacrum'.[1] *Tron* also exhibits unprecedented formal convergence between cinema and digital media in terms of its depiction of a diegetic video-game space and its pioneering use of visual effects techniques – live action and analogue animation as well as CGI. *Tron* was produced by Disney in conjunction with four pioneering computer graphics companies – MAGI/Synthevision, Information International Inc. (Triple-I), Robert Abel and Associates, and Digital Effects, each of which contributed different CG images to the film. While CGI had appeared in cinematic opening sequences as early as *The Andromeda Strain* (Wise, 1971), and more often in television graphics, *Tron* was one of the first films to incorporate shots of an entirely digitally created environment.[2] As McClean points out, while feature films had previously made 'tentative use' of CGI, it was not until *Tron* that 'computer graphics were a main component of a movie'[3]. Also predating the rise of fully-rendered 3D and full-raster graphics in video games, *Tron* presents an unprecedentedly expansive and engaging digital space, propelling cinema to the forefront of digital (re)presentation.

Yet *Tron*'s considerable budget and striking aesthetic novelty did not translate to box-office success. In fact, the film's ostentatious use of digital imagery proved particularly unpopular. As McClean notes, 'many blamed computer graphics for the failure of *Tron* at the box office' including Richard Taylor and Robert Abel, who themselves contributed to the film's CG content.[4] In the contemporary press, *Tron* was widely criticised for a perceived over-reliance on special effects and a lack of narrative weight. Moreover, two of the most sustained theoretical analyses of *Tron*, by Sobchack[5] and Bukatman,[6] also share a

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[1] J. P. Telotte, *The Mouse Machine: Disney and Technology* (Urbana: University of Illinois Press, 2008), 151

[2] *Tron*'s release was preceded by a few months by *Star Trek II: The Wrath of Khan* (Meyer, 1982), which represented a computer-generated environment in its computer simulation of the 'genesis device', although this was confined to a single moment in the film.

[3] *Digital Storytelling*, 42.

[4] Ibid., 42-43. Abel has conceded that "the bottom line of *Tron*, I think that we all learned… it's the story and the involvement with the characters that really makes or breaks a film." See ibid., 43.

[5] See *Screening* Space, 255-272.

[6] See *Terminal Identity*, 215-227.

sense that, while the film is significant in terms of its novel digital effects, it is ultimately a failure in terms of narrative. Since these popular and scholarly responses, however, discourse surrounding digital spectacle in cinema has developed in ways that call into question formerly prevalent assumptions about its (lack of) narrative function. In what follows, I introduce and explore a problematic in the dichotomisation of narrative and spectacle, particularly in relation to *Tron*. With hindsight, I assert, *Tron*'s deeply intertwined narrative and spectacular operations can be considered presciently reflective of significant changes in cinematic and digital modes of address, despite the film's critical and commercial failure in 1982.

I proceed to expand on how *Tron*'s narrative and spectacular elements collude in a reflexive transmedia dialogue between cinema and gaming. Given that, in 1982, Warner Communications was earning more money from computer games than feature films, a film about gaming must have seemed a promising prospect.[7] Again, however, *Tron*'s mediocre reception suggests that the subject was not as bankable as its production companies imagined. Janet Maslin for the *New York Times* praises *Tron*'s 'stunning computer graphics', but states that it 'may not be the film for you if you haven't played Atari today.'[8] Indeed, *Tron*'s fetishisation of arcade games appears to speak most directly to a specific, and limited, gaming market. Nevertheless, *Tron*'s explicit engagement with gaming in many ways prefigures and pioneers developments in video games as well as popular cinema itself during a formative period in the history of both media. *Tron* presciently appropriates digital imaging technologies to both promote and supersede the aesthetic and narrative modalities of contemporary games, while also challenging and reshaping the narrative and aesthetic codes of popular cinema in ways which seem to have been disregarded at the time.

Tron's engagement with contemporary video gaming is paralleled by a reflexive restaging of cinema's own formal history. I examine how *Tron* variously evokes certain narrative and aesthetic features of particular early twentieth-century cinemas, generating a range of productive convergences and divergences. *Tron*'s hybrid aesthetic, in which both analogue and digital imaging are pushed to their spectacular presentational limits, both recalls and extends early cinema spectacle. At the same time, *Tron*'s narrative is also crucial to this reflexive reworking of cinematic codes. Through its preoccupation with transformed, technologized and enfolded bodies and spaces, *Tron* constitutes a return to and a revision of certain pre-classical narrative and thematic paradigms, variously

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[7] *The Mouse Machine*, 151.
[8] J. Maslin 'Movie Review: Tron' in *The New York Times* (9/7/1982) [available at http://movies.nytimes.com/movie/review?res=9500E7DB103BF93AA35754C0A964948260, accessed 30/12/12].

sensationalising and naturalising the concept of bodily immersive virtual space. Thus *Tron* engages with the challenge that digital imaging and media technologies present to cinema by staging a kind of formal and narrative 'rebirth'. It enacts a revisionist mobilisation of preclassical archetypes and a celebratory subsumption of the digital image within a new, self-defined paradigm of cinematic address. Through simultaneous appeals to futurity and pastness, engagement with new digital technologies and a reassumption of silent-era aesthetics and narrative preoccupations, *Tron* stages, explores and sometimes foreshadows the effects of new technologies on media spectatorship and embodied perception.

Having explored this transmedia avenue, I finally consider how *Tron* works to undermine ontological distinctions between the analogue and the digital in terms of their relative allegorical or affective operations. The film renders dualistic figurations of 'cinematic' and 'digital' space deeply problematic given the intense novelty, hybridity and conceptual-phenomenal continuity between its hybrid visual effects. I explore how *Tron* mobilises continuities between 'old' and 'new' media forms, the material and the virtual, in order to 'flesh out' the cultural and phenomenological significance of virtual space. I conclude by making the case that *Tron*'s spectacular and narrative dimensions closely collude in the presentation, mapping and phenomenological articulation of VR and the digital image in its contemporary moment.

Narrative 'versus' Spectacle

While I intend to emphasise the interplay between *Tron*'s aesthetic and narrative dimensions, it is nonetheless reasonable to suggest that the latter was borne out of the former. Telotte notes that '[a]s the concept for *Tron* developed, [the crew] recognised that the narrative would grow out of three distinct dimensions: the back-lit animation that was their original focus, traditional live-action scenes, and computer-generated imagery.'[9] While *Tron*'s narrative clearly emerges in relation to a set of dominant aesthetic goals, however, this does not preclude its significance. My argument here is that *Tron*'s story does not solely function as a frame on which to 'hang' special effects, but rather constitutes a challenging refiguration of cinematic narrative in light of emergent paradigms of media engagement.

Maslin's description of *Tron*'s computer generated content reveals a sense of disjunction between the film's narrative and spectacular elements which is common in contemporary popular reactions to the film:

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[9] *The Mouse Machine*, 151.

> Its visual effects are wonderfully new. They are also numbing after a while. And how could they not be? They're loud, bright and empty, and they're all this movie has to offer.[10]

The language Maslin uses here describes *Tron*'s effects in a sensorially disengaged way – they are 'visual' effects, and they cause numbness. That these effects are 'all this movie has to offer' also imagines a void which begs to be filled by narrative – constructed as spectacle's opposite. *Variety*'s reviewer concurs on this, opining that '*Tron* is loaded with visual delights but falls way short of the mark in story and viewer involvement.'[11] The contemporary critical reception of *Tron* reflects an idea of the digital image as a site for disruptive and numbing spectacle, which is (problematically) set against concerns of narrative, continuity and emotional involvement.

The narrative-spectacle dichotomy also extends to scholarly discourse – on *Tron*'s conspicuous digital imagery in particular. For Sobchack, *Tron*'s electronic spaces exist 'solely to display' – and thus not, implicitly, to narrate, while Bukatman states that the film 'wavers between narrative and spectatorial dominants'.[12] The sequestration of special effects is paralleled by an assumption that *Tron*'s narrative, operating distinctly and separately, is ultimately insignificant. In fact, for Bukatman, *Tron*'s narrative is an abortive one. Subordinated to point of irrelevance, the film's '[n]arrative ultimately narrates its own failure and supersession by the overwhelming phenomenological imperatives of terminal space.'[13] However, it seems crucial to acknowledge the productive challenge that *Tron*'s austere narrative strategy presents to cinematic narrative itself – to what ends it might operate, and even what might constitute narrative elements. If *Tron* displaces the impetus to produce sophisticated human characterisation and classically motivated action, the question which arises is what, exactly, fills this perceived void? Even at this early stage of cinema's digital turn, *Tron* is symptomatic of an emergent mode of narrative logic in which digital effects contribute to and transform cinema's narrative imperatives rather than simply displacing them.

Wood highlights and problematises the critical tendency to both separate and oppose narrative and spectacle, citing Sobchack and Darley's work as examples.[14] In doing

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[10] 'Movie Review: Tron'.
[11] Anon., 'Review: "Tron"' in *Variety* (31/12/1981) [available at http://variety.com/1981/film/reviews/tron-1200425067/, accessed 13/2/2016].
[12] *Terminal Identity*, 226.
[13] Ibid., 226.
[14] Wood cites Darley's assertion that '*spectacle* is, in many respects the *antithesis of narrative*.' See 'Timespaces in Spectacular Cinema', 371.

so, Wood discusses how the verisimilitude attainable in turn-of-the-century effects enables them to transcend the status of 'spectacle' and to constitute narrative elements in themselves. Comparing the special-effects depictions of the HMS Titanic in *A Night to Remember* (Baker, 1958) and *Titanic* (Cameron, 1997), Wood notes that digital effects technologies used in the latter allowed for comparatively more screen-time to be spent depicting the ship while maintaining an air of authenticity. Consequently, she argues, such effects 'operate as another dimension of the narrative of *Titanic*, the dimension that places a particular emphasis on the story of the fall of this technological giant.'[15] The HMS Titanic thus becomes more than the space in which narrative events unfold – it becomes a narrative agent in itself.

To emphasise this, Wood calls to question Deleuze's concept of the action-image, which is focused on the reactions and relations between a character and other elements of the film – surroundings, events and other characters, for example.[16] Within this paradigm, characters act as agents within the space, advancing the narrative trajectory. As Wood suggests, this emphasis on character downplays the activity of other (digitally constructed) story elements themselves, which are more usually aligned with spatial display rather than temporal narrative progression. She contends that digital effects can similarly 'have the effect of modifying the situation, and as such can operate as mobile agents of the narrative.'[17] While they are not *equivalent* to characters, Wood makes the point that 'characters are not the only means through which situations can be modified.'[18] Indeed, other phenomena may operate in a dynamic relation to diegetic space, rather than simply forming part of it. Of course, special effects have often been active elements of film throughout its history. Wood points out, however, that through the enhanced verisimilitude of digital effects, and the relatively long periods of time in which they are present on screen, the 'extensiveness of their plot function' is enhanced.[19]

Digital special effects function similarly in *Tron* despite preceding the kinds of naturalistic digital imagery Wood discusses. Its depiction of 'a computer reality you've never seen before'[20] allows the diegetic virtual world to exist as its own 'realistic' paradigm, in which live-action and animation conform to an internal verisimilitude governed by a 'computer-generated', game-like aesthetic. Moreover, this strategy allows extensive screen-

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[15] Ibid., 372.
[16] Ibid., 376.
[17] Ibid., 374.
[18] Ibid., 376.
[19] Ibid., 377.
[20] See 'Posters' on *Tron: 20th Anniversary Collector's Edition* (DVD 2002), disc 2.

time to be devoted to the presentation of 'nonhuman', diegetically digital elements. Indeed, whether CG or analogue, spectacular phenomena are so abundant in *Tron* that they come to constitute narrative agents in themselves. The 'Bit' and the Master Control Program for example all have as much impact on narrative action as the humanoid 'program' characters who are themselves largely underdeveloped. In what follows, I further explore how the motivational, allegorical and (re)presentational power of digital and analogue effects work concomitantly in *Tron*'s reflexive narrative exploration of VR.

Tron and Video Gaming

The interplay between narrative and spectacle in *Tron* becomes more evident in the film's eager transmedia engagement with video games. *Tron* emerged during a boom in home and arcade video game consumption in the early 1980s,[21] and evinces an intense dialogic exchange between the two forms. Popular film had tentatively engaged with video games well before the emergence of the VR subgenre.[22] *Soylent Green* (Fleischer, 1973), for example, depicts the first commercially sold video game, *Computer Space* (1971), while *Westworld* (Crichton, 1973) imagines a game-like amusement park in which wealthy clients 'pay to play' at shooting robots. In spite of these few precedents, *Tron*'s narrative and aesthetic approximation of video gaming is far more extensive and sustained. With hindsight, *Tron* marks an early stage in the mutually dialogic relation between cinema and gaming which would intensify throughout the following decades. *Tron* indicates that video gaming, even at this early stage, was extending its influence to film narrative and spectacle just as cinema was conversely impacting upon the aesthetic and narrative paradigms of gaming.

For one thing, *Tron*'s narrative mobilises the experiential modalities of contemporary video gaming by reframing the screen as a site for affective interaction. Sheila C. Murphy explores how home console gaming, for instance, enacted a transformation of the televisual interface into a site for immersive experience, extending 'the space of the game out into the space traditionally reserved for televisual spectatorship and consumption', and delineating that space 'as one of *action* and *engagement*, rather than

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[21] See H. Lowood 'A Brief Biography of Computer Games in P. Vorderer and J Bryant (eds.), *Playing Video Games: Motives, Responses, and Consequences* (Taylor & Francis E-Library, 2009) 39-40.
[22] To a greater degree, however, games had engaged with film: as Martin Picard notes, 'In the early 1980s, video games were already known for their adaptations of television series and American films, especially on the Atari 2600 console.' See M. Picard, 'Video Games and their Relationship with Other Media' in *The Video Game* Explosion, 294.

inaction and passive reception.'[23] That the same kind of interactive potential is afforded by arcade gaming suggests that, beyond the domestic-televisual context, screens more generally had come to be figured as potential sites of interaction rather than 'passive' reception in the early 1980s. Extrapolating upon this contemporary transformation, *Tron* allusively suggests a parallel reconceptualisation of the cinema screen to one of sensory engagement and discovery, seeking to transcend the audiovisual limitations of cinema through its spectacular rendering of an immersive reality beyond the diegetic interface. Through its VR narrative, *Tron* approximates the ability of video games to 'open up new aesthetic experiences and transform the computer screen into a broadly accessible realm of experimentation and innovation.'[24]

By virtue of its status as a high-budget Hollywood blockbuster,[25] *Tron* is able to approximate the interactive modalities of real-world gaming through pioneering and visceral spectacular effects, which themselves present a more phenomenologically 'complete' and immersive world than contemporary video games could provide. Will Brooker notes that *Tron* and *The Last Starfighter* (Castle, 1984) 'popularized the idea that a game was simply the visible interface of a larger universe', and 'that arcade games were merely simulations of real combat in a parallel universe, that the on-screen schematics were just a guideline, a two-dimensional representation of three-dimensional CGI.'[26] An excerpt from *Tron*'s script highlights this intention:

> The Electronic World is a mirror of our own, consisting of the electronic information in our computers, television sets and telecommunications network. It is peopled by computer programs, data, and the characters from countless video games. For the first time, we are seeing their world as it really is, rather than through the window of television screens.[27]

Tron's overtly stylised visual effects highlight cinema's presentational function – its propensity to construct illusory realities imbued with phenomenological gravity. Concurrently, its narrative premise takes up cinema's perceived representational function to

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[23] S. C. Murphy, 'Live in Your World, Play in Ours: The Spaces of Video Game Identity' in *Journal of Visual Culture*, vol. 3, no. 4 (August 2004), 224.
[24] H. Jenkins, *The Wow Climax: Tracing the Emotional Impact of Popular Culture* (New York: New York University Press, 2007), 23.
[25] *Tron*'s budget was an estimated $17m. See 'Box Office/Business for TRON' on Imdb.com [available at http://www.imdb.com/title/tt0084827/business, accessed 10/02/2016].
[26] W. Brooker 'Maps of Many Worlds: Remembering Computer Game Fandom in the 1980s' in *Transformative Works and Cultures*, vol. 2 (2009) [available at http://journal.transformativeworks.org/index.php/twc/article/view/34/73, accessed 6/2/13], no pagination.
[27] See 'TRON Script' on Imdb.com [available at http://www.imsdb.com/scripts/TRON.html, accessed 16/3/13].

show the computer world 'as it really is', appealing to a fantasied disappearance of the cinematic interface which affords direct and immediate access to a ludic reality.

The opening sequence establishes from the outset *Tron*'s celebration, promotion and approximation of video games on one hand, and its hyperbolic surpassing of their graphical and experiential limitations on the other. At Flynn's bustling arcade, a player inserts a coin into one of the machines – entitled 'Lightcycle' – and grasps the joystick. On the screen, lines of yellow and blue light snake across a stark black background. A glowing green line encloses the two-dimensional game-space, defining and augmenting the finitude of the arcade screen. The camera tracks into the screen and twists into a canted angle, before dissolving into a fully rendered, computer-generated shot of the lightcycles careening through an expansive, three-dimensional game grid. The sequence cuts back and forth between the static, delimited arcade interface and the richer, more expansive game-world on the other side of the diegetic screen. Later, when Flynn tries to hack ENCOM's memory files, the diegetic interface is not an arcade machine but a computer screen, consisting only of text on a black background. The image of Flynn's banal console interface is again cut back-and-forth with the digitally-rendered landscape beyond it, which is populated by fully rendered CG tanks and recognizers, emphasising the alterity between the quotidian representation of real-world digital media use and the richly spectacular world beyond the interface.

At one stage, the diegetic representation of 'real-world' gaming is itself augmented beyond its contemporary graphical limitations. In the arcade, Flynn plays a game that is strikingly reminiscent of *Battlezone* (1980) – the first 3D arcade game. He controls a tank which scrolls forwards, pans up and down, and shoots at recognizers which are rendered to a level of detail unattainable in games of the period. This particular scene was produced as a diegetic advertisement for a *Tron* arcade game to be released simultaneously with the film.[28] In analysing *Tron*'s ambiguous relation to video games, then, it is crucial to apprehend the industrial imperatives underpinning such a dialogue.[29] Prince has pointed out that the early 1980s saw Hollywood's principal product move from film to 'filmed entertainment' – encompassing video games and rides.[30] This diversification of

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[28] Kuchner states that "we knew Bally [Midway] was going to release a video game simultaneous to the picture, and therefore we wanted to have the design of the game in the arcade and the game in the real world that people would actually play [to] be very similar." See 'Audio Commentary' on *Tron 20th Anniversary Collector's Edition*, disc 1, 17:01.

[29] Two months before *Tron*'s release in 1982, *Computers Are People, Too!* aired, a TV film by Walt Disney Productions, which promoted the upcoming film through a behind-the-scenes look at its special effects production.

[30] *Digital Visual Effects in Cinema*, xi-xii.

Hollywood's product, due to an unprecedentedly complex and wide-reaching network of acquisitions which began in the 1980s and continued into the 1990s[31] means that, as a franchise, *Tron* was sold not only as a cinematic product, but also as a game (which actually grossed more than the film itself).[32] In promoting this game diegetically, *Tron* actually *capitalises on* cinema's audiovisual limitation – offering complex computer-generated effects which would have been impossible to render as interactive game-space in the early 1980s. As producer Donald Kuchner notes, "at that time there was no way that a computer game could have real-time, interactive, full raster graphic imagery so it was a prediction of the future – of the way games were going to evolve."[33] *Tron* is a striking example of how cinematic special effects technologies have pioneered advances in game development, prefiguring its spatial and aesthetic paradigms.[34] As Leon Gurevitch notes, '*Tron* can be seen as the first of many occasions in which Hollywood would place its stamp upon what it expected to be the future of CG cinematics' – in games as well as film.[35]

Concurrently, *Tron* appropriates and develops the imaginative and immersive modalities of contemporary video gaming to imbue its own, necessarily minimalistic CG environments with phenomenological gravity. Will Brooker recalls the 'skeletal' aesthetics of early 1980s video games, which elicited imaginative investment in order to 'flesh out' the sparse 2D outlines and limited colour palettes of early computer graphics. Outlining his own experience of playing *Zzoom* (1983), Brooker states:

> I don't remember *Zzoom* as a garish clutter of magenta airplanes and bright red tanks, like a kid's poster painting of a war zone. I remember the way palm trees rushed toward your windscreen in the desert zone, and the way, between attack waves, the camera drifted up into the clouds in a brief, calm interlude. In both cases, I remember landscapes, skies, seas, and natural environments rather than military hardware. [36]

Brooker's evocative description attests to how contemporary games were significantly dependent upon the evocation of embodied experience and perceptual memory to substantiate their austere visuality. Likewise, *Tron*'s computer-world aesthetic of stylised

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[31] *Ibid*., xiv.
[32] *The Video Game Explosion*, 94.
[33] 'Audio Commentary', 17:29.
[34] Bill Kroyer has stated that "when we finished *Tron* we had pushed the technology of these computer companies, I think, many, many years ahead of where they would have been if they hadn't worked with us during the feature.", see 'Digital Imagery in Tron' on *Tron: 20th Anniversary Collector's Edition*, disc 2, 03:37.
[35] L. Gurevitch, "The Cinemas of Interactions: Cinematics and the 'Game Effect' in the Age of Digital Attractions' in *Senses of Cinema*, issue 57 (December 2010) [available at http://sensesofcinema.com/2010/feature-articles/the-cinemas-of-interactions-cinematics-and-the-%E2%80%98game-effect%E2%80%99-in-the-age-of-digital-attractions/, accessed 01/01/2016], no pagination.
[36] 'Maps of Many Worlds'.

pragmatism – its Euclidean shapes, its evocative smoothness, brightness and hypermobility – appeal to this kind of imaginative perceptual response. Radically antithetical to popular cinema's impetus to capture or represent the material world, *Tron* claims for the cinema a mastery of the newly-conceived digital world which was beginning to engage gamers like Brooker.

In displacing the impetus to represent a familiar world, *Tron* curbs the significance of diegetic 'reality' by minimising the suggestion of off-screen space; a strategy which centralises its diegetic game world and emphasises its careful construction. As Mark Wolf notes:

> [U]nlike film, off-screen space in a video game does not have a pro-filmic referent the way a filmed space often does. When a live action film camera is set up and pointed at something, there is always space outside the frame, off-screen, whether it is actively used or acknowledged by the film-maker or not. In a video game, not only the representation of space, but its very implication, depend on being programmed and actively created.[37]

In both 'real' and 'virtual' diegetic spaces, *Tron*'s analogue images appear contained and intensively constructed, downplaying any allusion to the profilmic. Shot in dark studios with a largely immobile camera, scenes which take place in the computer-world consist of analogue elements either overlaid with animation or matted onto digitally animated backgrounds.[38] The material provenance of these shots is stylised to the point of abstraction – highlighting the activity behind its creation. Live-action sequences in the 'real world' similarly depict peculiarly enclosed, delimited spaces. At Flynn's arcade and the ENCOM labs, for example, the static camera does not move to reveal space,[39] and the darkness of the predominantly night-time exterior shots derail the apprehension of an expansive environment. In contrast, *Tron* works hard to foreground the expansiveness of its diegetic digital space through, for example, its soaring virtual shot of blocky 'clouds' migrating across the planetary landscape of the computer world, the winding canyons through which Flynn is pursued by tanks, and the expansive vista of the Lightcycle arena. Bill Kroyer has stated that "we wanted a feeling of vast scale in *Tron*. We wanted that cycle arena to feel like it was miles wide."[40] Despite a degree of alterity between the mobility of *Tron*'s analogue and digital effects, however, both reflexively testify to their own

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[37] 'Inventing Space', 12.
[38] 'Digital Imagery in Tron', 00:13.
[39] Brooker points out a similarity between early cinema and early (1970s) gaming – that what limited their 'spatial storytelling' was, 'in both cases, a static "camera"'. See W. Brooker, 'Camera-Eye, CG-Eye: Videogames and the "Cinematic"' in *Cinema Journal* vol. 48, no. 3 (Spring 2009), 125.
[40] 'Digital Imagery in Tron', 02:37.

constructedness in ways which foreground the ability of popular cinema to present as well as to represent fantastical worlds.

In terms of narrative structure, *Tron* is organised around and driven by spectacular set-pieces which operate in a structurally similar way to the linear levels of contemporary games. Lacking flashbacks or temporal discontinuity, the narrative 'plays out' as it is played by Flynn: from start to finish, level to level. The lightcycles, the *PONG*-like disc arena, Flynn's flight in the recognizer, the pursuit of the 'Solar Sailor' by the MCP's ship – these spectacular moments do not disrupt but actually *constitute Tron*'s narrative progress. Concurrently, dialogue sequences serve primarily to contextualise the next game sequence. A scene in the cells, for example, introduces Crom – a barely-developed character who later functions as Flynn's opponent in the disc arena. What masquerades as the introduction of a character – a normative narrative convention – is actually a pretext for Flynn to play, to complete a 'level' and progress through the film-game. Similarly, Tron and Lori's altercation with Dumont serves as a complication, suspending progress through the diegetic game.

By the standards of classical narrative, *Tron*'s characters are peculiarly underdeveloped, and yet they perform an intrinsic function in mediating narrative engagement; in facilitating the film's appropriation of gaming. As Henry Jenkins notes, game characters function as 'tools or vehicles that allow the players to interact with various fictional worlds.'[41] Using the example of Nintendo's most famous creation – Mario – Jenkins continues that the game-character 'is a more human version of the cursor, a way of insuring immediate accessibility to the game.'[42] A similar spectator-character relation operates in *Tron* through identification with Flynn who, while being the most developed character, still operates as a vessel in this regard. A video-game enthusiast and disgruntled ex-employee of ENCOM, Flynn exists primarily as a way to identify with the digital world and provide a basic motive for its exploration. In *Tron*, paradigms of characterisation are refigured in approximation of a gamer-character relation – in which characters themselves are subordinated to the primary subjective and sensory experience of the player, and to the progress of the diegetic game.

Michael Nitsche's description of playing an experimental VR version of *PONG* directly alludes to the function of characterisation in *Tron*:

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[41] H. Jenkins, "X-logic: Repositioning Nintendo in Children's Lives' in *Quarterly Review of Film and Video*, vol. 14, no. 4 (1993), 67.
[42] Ibid.

> In this fully immersive 3D *PONG* I stood in the middle of a cross-shaped platform floating in space, holding a virtual wire-frame paddle attached to the controller in my hand… the setup brought back fond memories of the grid in *Tron*. Like Kevin Flynn… who stepped onto the grid of his own program in Lisberger's *Tron*, I (playing myself) stepped into the grid of the *Pong* world. No avatar is needed – no body but mine.[43]

Nitsche's experience appeals to a sense that, in VR, the embodied subjectivity of the spectator or user takes precedence over any secondary characterisation. This evokes the ways in which cinematic spectatorship – in this case the memory of *Tron* and identification with Flynn – shapes perceptual engagements with digitally mediated spaces. For Bukatman, *Tron* 'encourages an identification with Flynn to enhance the phenomenological impact of the *film's* electronic spatiality.'[44] Indeed, *Tron*'s characters operate primarily to mediate between spectator and (cinematic) digital environment – their flatness is a function of the impetus to appropriate and approximate the bodily primacy of the gaming experience, and to figure virtual space as a site for subjective exploration. By downplaying the technological apparatus – cumbersome machines, consoles, joysticks – *Tron* presents a world in which 'no body is needed. No body but mine.' This appeal to haptic engagement is particularly overt in *Tron*'s gladiatorial gaming sequences which, like many contemporary arcade games such as *PONG*, refer to real-world physical activities. The game in the disc arena is reminiscent of games like tennis or Frisbee, while the lightcycle and tank sequences appeal to the pleasures of driving or piloting fast vehicles but without the need for bulky apparatus. By underlining the corporeality of these affective spectacular sequences, *Tron* manages to extend and transcend the two-dimensionality of the cinema screen: to ameliorate its audiovisual limitation and lack of direct interactive agency.

While *Tron*'s narrative austerity fits uneasily within the paradigm of classical popular cinema, it constitutes an augmentation of narrative within the ludic paradigm it employs. Contemporary games were often predicated on far simpler narrative hooks – thwart the alien invasion (*Space Invaders*, 1978), rescue Princess Toadstool (*Super Mario Bros*, 1985). Many had no real narrative or back-story at all, as in *Zaxxon* (1982) or *Tempest* (1981). *Tron* assumes the bare-bones narrative logic of gaming in order to, paradoxically, provide an approximation of gaming which provides a comparatively engaging narrative. The sense of mortal risk, and the real-world impact of Flynn's actions within the game foster enhanced narrative investment in diegetic ludic space. *Tron*'s narrative strategy thus does more than simply appealing to immersive sensory experience over classical narration. By adopting the

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[43] M. Nitsche, *Video Game Spaces: Image, Play and Structure in 3D Game Worlds* (Cambridge, MA: MIT Press, 2008), 211.
[44] *Terminal Identity*, 226.

codes and augmenting the capabilities of contemporary video games, it also works to 'narrativise' gaming as a cultural mythology beyond its own contemporary formal paradigms. In this way, *Tron* not only functions to define and promote itself as (ludic) cinema through cutting-edge special effects spectacle, but through the reflexive endorsement of cinema's propensity for storytelling in relation to contemporary digital games.

Through narrative and spectacle, then, *Tron* simultaneously appropriates and celebrates video games themselves in a mimetic and dialogic way. Through its innovative use of visual effects technologies, *Tron* appropriates the digital basis of contemporary video games while exceeding them in terms of detail, movement and three-dimensionality. At the same time, *Tron*'s narrative approximation of ludic experience speaks *to* a contemporary desire for interactivity while it speaks *of* an impetus to appropriate, and thus contain, digital space: to lay claim to cinema's ability to effectively engage audiences at a moment when gaming presented significant commercial and cultural challenges to popular cinema. Unlike many subsequent VR films, in which immersive digital spaces are often indistinguishable from diegetic 'reality', *Tron* depicts a radically abstract computer-space with its own carefully authored set of phenomenal and experiential paradigms. Rather than simply differentiating or contrasting the ontological natures of analogue and digital, 'real' and virtual, the spectator is encouraged to reflect upon the contingencies of mediated perception. In its reflexive 'materialisation' of a world beyond the digital interface, *Tron* upholds and develops the representational and affective potential of cinematic address which, it seems to assert, is in many ways superior to the capabilities of contemporary digitally imaged media. As Gurevitch notes, 'it is no accident that Hollywood narrativised game space as a three dimensional, photosynthetically rendered cinematic space long before the computing and programming power existed within the games of the time.'[45] In subsuming the digital image within a largely cinematographic and narrative space, *Tron* tames and contains its diegetic and extradiegetic impact. It simultaneously reemphasises the pleasures of narrative cinema while striving to transform its (re)presentational and narrative modalities in relation to the particular pleasures associated with contemporary digital media.

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[45] 'The Cinemas of Interactions'.

Tron and Pre-classical Cinemas

In an evocative parallel to *Tron*'s engagement with gaming, its narrative and spectacular strategies also bear significant relation to those of early twentieth century cinemas. *Tron* variously evokes what Noël Burch characterises as cinema's 'primitive mode' – that is, films produced prior to 1906[46] – as well as German Expressionist cinema. In particular, *Tron*'s largely analogue special effects, its overtly presentational style and its narrative preoccupation with embodied and spatial transformation are deeply evocative of the works of Georges Méliès, F. W. Murnau and Fritz Lang. At the same time, *Tron* produces moments of reflexive divergence from the modalities of these pre-classical cinemas. By evoking cinema's past while gesturing so hyperbolically towards the future, *Tron* enacts a dualistic regression and progression of cinematic form, reflexively staging a transformative rebirth of cinema's phenomenological paradigms in light of the emergent digital technologies which it thematically appropriates and innovatively employs.

Tron's aesthetic similarities to pre-classical cinemas are striking. The process of animating analogue shots of the computer-world, for example, involves adding layers of lighting through multiple exposures – resulting in accentuated grain and imperfections which call to mind the disintegration of early film prints.[47] Sets and costumes are black and white, while colours are washed out to the point that actors' faces adopt a similarly monochromatic hue. Facial features are accentuated with early film style make-up; Sark's distinct eye make-up and robotic acting style are strikingly reminiscent of Conrad Veidt villains. While evoking the stark, monochromatic stylisation of German Expressionist films, *Tron*'s distanced, presentational aesthetic also bears a particular resemblance to pre-1906 cinematography. When Flynn enters the digital world, an extreme close-up of his kohl-lined eyes gazing melodramatically about him evokes the rare and incongruous close-up shots which punctuated such films – and which contrasted with the largely distant composition practicable using early twentieth-century film cameras.[48] This kind of shot is

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[46] N. Burch (B. Brewster trans.), 'A Primitive Mode of Representation?' in T. Elsaesser and A. Barker (eds.), *Early Cinema: Space, Frame, Narrative* (London: BFI, 1990). Burch's chapter has been subsequently criticised from diverse academic perspectives, including that of Burch himself, as tending towards a problematically teleological view of early cinema as a 'primitive' and underdeveloped stepping-stone in the history of classical narrative cinema. See for example S. Popple and J. Kember, *Early Cinema: From Factory Gate to Dream Factory* (London: Wallflower Press, 2004), 33-35.

[47] Visual effects supervisor Harrison Ellenshaw points out that, in a particular sequence "you can really see some of the flaws… imperfections in the cells. Little bits of dirt that pop on and off." See 'Audio Commentary', 45:49.

[48] For Burch, one of the main cinematographic characteristics of 'primitive' early cinema is 'horizontal and frontal camera placement' and a preponderance of long shots. See *Early Cinema*, 220.

also fairly rare in *Tron* – in which the use of large and unwieldy 70mm cameras necessitated almost total camera immobility for the live-action VR scenes.[49] As a necessary consequence of aesthetic decisions, *Tron* assumes a similar set of limitations and inevitably static presentation that characterised early cinema.

Tron's often distanced shot compositions produce a dynamic obverse to the film's spectacular moments – both its occasional computer-generated elements, and its analogue game sequences which push animation techniques to their spectacular limit. The disc arena sequence, for example, constitutes a hyperkinetic display of analogue special effects, augmented by a rapid rate of cutting and dynamic camera angles which contrast with its typically distanced aesthetic presentation. While *Tron* ostensibly casts the digital image as cinema's new technological wonder, then, the film situates and tames it within a highly stylised environment which is as much the product of innovative analogue animation techniques. Where it occurs, digital imagery is thus contained within a reflexively cinematic framework, and cast as a specifically cinematic spectacular mode.

Tron's reflexive evocation of particular silent-era cinemas also extends to its narrative. Like *Tron*, both German Expressionist cinema and the films of Méliès hyperbolically explore the potential effects of (cinematic) technology on the body, variously depicting its transformation, multiplication and ontological enfolding into spaces and objects. In *The Man with the Rubber Head* (Méliès, 1901), for example, a man's head is inflated like a balloon, while in *Metropolis* (Lang, 1927) machines become anthropomorphised while human beings operate as mechanical parts. Both *The Famous Box Trick* (Méliès, 1898) and *The One Man Band* (Méliès, 1900) feature characters transformed into multiples of themselves, while *The Brahmin and the Butterfly* (Méliès, 1901) sees a fakir transform a cocoon into a butterfly-woman, and then into a Princess, who turns the fakir into a caterpillar. In *Nosferatu* (Murnau, 1922), Count Orlok emerges from a dark tunnel, his body barely visible in the gloom while his pale, domed head mimics the shape and shade of the archway. Identities are dispersed and multiplied in *The Testament of Dr Mabuse* (Lang, 1933), in which the spirit of a dead criminal mastermind merges with that of psychologist Professor Baum, and in *Metropolis*, in which the protagonist's paramour Maria is replaced by a doppelgänger robot.

In *Tron*'s computer-space, characters similarly merge with their environments and with CG phenomena. In the disc arena, characters' illuminated bodies are enfolded into the

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[49] Lisberger states that: "My camera – my 70mm camera – was almost always nailed down to the floor for each shot. So there's no moving camera, there's no handheld camera, there are no camera moves." See 'Audio Commentary', 1:00:38.

diegetically digital (but technically analogue) space, while in the lightcycle sequence, characters morph into digital cycles which become inseparable from their bodies. There is also a doubling of identities, as programs not only resemble, but 're-embody' and partially constitute the identities of, their real-world counterparts. *Tron* shares Expressionist cinema's fascination with anthropomorphism and the technologised self, and the relation between human and machine, subject and object. Characters are embedded into the (diegetically digital) phenomenal field, alienating familiar phenomenological relationships to things and to the self, expressing the thrill and the threat of becoming enfolded into a new ontology. *Tron*'s Expressionist aesthetic and narrative themes imbue the computer world with a reflexively phenomenological character – focused on abstract experience, spectacle and image rather than traditionally conceived notions of narrative, naturalism and objectivity. On Expressionism, John Titford notes:

> Bringing to bear the theories of contemporary philosophical and psychological thinking, in particular those of phenomenology and Freudianism, expressionists attempted to develop an art which represented subjective experience, embracing what was later to become a *sine qua non* of general semantics – the concept that the individual chooses his own reality, by using his senses to abstract from the world in process.[50]

While I do not wish to credit *Tron* with the same degree of philosophical or existential depth, the film similarly encourages an abstraction from the objective, everyday material world, appealing to the constitution of worldly experience through sensory abstraction. However, *Tron* mobilises such concepts in order to substantiate diegetic virtual space as cultural and externalised rather than subjective and internal. While the material worlds that Méliès and the German Expressionists so uncannily abstracted is given in everyday experience, *Tron*'s computer-world requires some 'fleshing out'. In 1982, digital space was a young concept, the paradigms for conceiving of and apprehending immaterial phenomena as-yet unmapped. By narrating Flynn's progressive discovery and mastery of this new world, *Tron* assumes the impetus to create and make sense of a conceptual digital 'reality' which was increasingly gaining media attention and inflecting cultural representations on narrative and aesthetic levels. As the very first VR film, *Tron*'s simplistic narrative exists not to alienate, but to naturalise spectatorial relations to digitally rendered characters, objects and environments.

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[50] J. S. Titford, 'Object-Subject Relationships in German Expressionist Cinema' in *Cinema Journal*, vol. 13, no. 1 (Autumn, 1983), 17.

Tron's notable dissimilarities to German Expressionism go further. While the latter is highly corporeal, filled with images of bodily disintegration and death, *Tron*'s world is clean and cadaver-less. When they die, programs simply, to use the parlance of the film, 'de-rezz' – their bodies disintegrate into pixels and fade away. *Tron*'s diegetic digital reality is one of pristine cyber-cleanliness, eschewing the 'unproductive leavings of organic life'[51]. By downplaying the organic physicality of bodies to such a degree, while relying so heavily on affective audiovisual effects, *Tron* produces a disjunction between the body as material and the body as sensorium. By shunning the everyday materiality of embodied being, representing bodies without immediate need of physical location, *Tron* appeals to a hyperbolic transcendence of everyday embodiment and its corporeal limitations. This transcendental fantasy is matched by cinema's own reflexive formal refiguration. Displacing the impetus to represent the physical world, *Tron* promotes the pleasurably affective potential of its constructed virtual phenomena, and moreover asserts cinema's ability to materialise, map, and position us within, the 'placeless' world beyond the interface.

In its ambiguous adoption and subversion of early and German Expressionist cinema's aesthetics and narrative tropes, *Tron* thus reflexively stages a rebirth of the cinema – a return to preclassical modes of cinematic representation as a basis from which to refigure its own mode of address. As Wood points out, spectacle 'was in many ways the foundation of early cinema',[52] and in many ways it also forms the foundation of *Tron*'s narrative. And yet in *Tron* there is both contrast and continuity between cinematic past and cinematic future. Gunning's seminal analysis, 'The Cinema of Attractions',[53] in which he argues that early cinema was characterised by a presentational mode of address, has subsequently influenced the study of contemporary effects films, for example by Darley[54] and Wanda Strauven.[55] Echoing Gunning's sentiments on early cinema, Darley situates the contemporary aesthetics of effects-driven films within 'a spectacle tradition… that revels in sensation, astonishment, ephemerality and diversion.'[56] Although productive connections can be made between Gunning's model of the early cinema spectator and certain aspects of contemporary spectatorship, they are not as equivalent as some analyses may imply. Kristen Whissel for instance notes that, while many spectacular effects strikingly resemble the early

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[51] T. Harpold and K. Phillip, 'Of Bugs and Rats: Cyber-Cleanliness, Cyber-Squalor, and the Fantasy-Spaces of Informational Globalization' in *Postmodern Culture*, vol. 11, no. 1 (September 2000), para. 34, no pagination.
[52] A. Wood, 'Timespaces in Spectacular Cinema', 371.
[53] T. Gunning, 'The Cinema of Attractions - Early Film, Its Spectator and the Avant-Garde' in *Early Cinema – Space, Frame, Narrative*, 56-62.
[54] *Visual Digital Culture*, 45-46.
[55] W. Strauven (ed.), *The Cinema of Attractions Reloaded* (Amsterdam: Amsterdam University Press, 2006).
[56] *Visual Digital Culture*, 76.

film attraction, the structural similarities have been overstated[57] and, for Thomas Elsaesser, '[t]he notion that the cinema of attractions can explain post-classical cinema distorts both early cinema and post-classical cinema.'[58] Indeed, Gunning himself does not conjecture a self-same relation, asserting that while such 'attractions' persist within the contemporary special-effects driven blockbuster, they are ultimately 'tamed' and contained by an overarching narrative structure.[59]

Indeed, *Tron*'s series of presentational moments operate not only as a 'framework' for spectacular address, but constitute the fabric of the narrative world. In representing a game-world come to life, cinematic narrative motivation is reflexively refigured in relation to the paradigms of gaming and the ontology of the digital image. In its mobilisation of cinema past within a VR narrative, *Tron* is emblematic of what Young refers to as 'digital fantasy films', which are compelled to hark back to the cinema's origin.

> [D]igital fantasy films continually invite their distracted audiences to glance into film's equally distracted ancient past in order to glimpse its present and its future, for in that past of distraction and spectacle for their own sake lies Hollywood's best chance for competing with the new media and institutions and the interactive publics they gather.[60]

Tron restages its own formal origin in order to reconstruct and reconceptualise the codes of cinematic address in relation to emergent modes of media engagement which offer heightened immersion and interactivity. I disagree, however, with the idea that spectacle is foregrounded 'for its own sake'. A disavowal of the narrational functions of *Tron*'s spectacular moments misses the extent of *Tron*'s refiguration of cinematic narrative in a spirit of coalescence and competition with emerging interactive forms. *Tron*'s ambiguous assumptions and rejections of the aesthetics and thematics of silent-era cinema communicate a transcendence, or transformation, of celluloid cinema combined with a yearning for its endurance. By so radically combining analogue special effects with new, digital imaging technologies in the creation of a fantastical, yet diegetically materialised virtual space, *Tron* takes up and extends the propensity for cinema to both represent and subvert the contemporary 'real'. *Tron*'s past and future dialectic underlines the allegorical power of both digital and analogue spectacle, and moreover unsettles any ultimate essential or ontological distinctions between them.

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[57] *Spectacular Digital Effects*, 5-6.
[58] T. Elsaesser, 'The New Film History as Media Archaeology' in *Cinémas: Journal of Film Studies*, vol. 14, no. 2-3 (Spring 2003), 100.
[59] 'The Cinema of Attractions', 61.
[60] *The Cinema Dreams its Rivals*, 195.

The Ontology of the Image

The extent to which 'the digital' and 'the cinematic' intertwine within and between *Tron*'s narrative and aesthetic strategies complicates any ostensibly inherent dichotomy between cinematic and electronic imagery. In films like *Tron* which employ computer-generated images, Sobchack states that '[t]he privileging of electronic depiction here depends upon its marked difference from cinematographic representation rather than upon its integration with it (however much integration may be "promoted" by the narrative).'[61] Sobchack also describes *Tron*'s special effects as 'punctual'[62], and asserts that the impact of such effects is predicated upon 'their overall "scarcity" in the film's economy', creating an 'anticipatory desire' in its audience.[63] Yet *Tron*'s special effects are neither as punctual, nor as dichotomous with the cinematic image as Sobchack's analysis would imply. While in many other contemporary Hollywood films digital effects were confined to distinct moments – for example in the 'genesis device' sequence in *Star Trek II: The Wrath of Khan* (Meyer, 1982), in *Tron* cinematic and digital images are often combined to a near-inextricable degree.[64] Much of *Tron*'s diegetic computer-space is no more 'ontologically' 'digital' than any other hand-animated film, having been accomplished by a mix of live-action and animation techniques. Despite moments which contrast the mobility of the film's fully computer-generated sequences to the largely static live-action camera, *Tron* is also comprised of many spectacular and kinaesthetic sequences which are *not* computer-generated, and several sequences which combine live action, animation *and* computer-generated content. *Tron*'s abundant (and often hybrid) analogue and digital special effects were *equally* novel; both distort and challenge popular cinema's prevailing visual paradigms as they strive to represent a world 'never-before-seen.' *Tron* owes as much to analogue processes (and to cinema's perceived representational function) as it does to digital postproduction in order to imbue this world with a liveliness and a sense of exploratory depth beyond the scope of either contemporary digital media or purely analogue cinematics. Thus Sobchack's suggestion that *Tron*'s '[f]lattened, electronically simulated space conservatively affirms the cinema image as "real" by contrast'[65] does not reflect the

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[61] *Screening Space*, 261.
[62] Ibid., 283.
[63] Ibid., 259.
[64] Lisberger states that "as far as I know we still have more shots with human beings composited into an artificial environment than any other movie. I believe there's eleven hundred special effects shots in the film and nine hundred of which have human beings composited." See 'Audio Commentary', 49:00.
[65] *Screening Space*, 260.

extent to which different formal techniques are integrated throughout the film, and the extent to which this undermines spectatorial certainty about their relative ontologies.

Writing in 1987, Sobchack nevertheless posits that digital effects in contemporary films are 'simultaneously fetishized and quarantined' so that the digital's 'threat of total diffusion is de-fused'.[66] This does not suggest "a cinema displaying and celebrating its *own* technological capacity for representation', but rather attests to 'a cinema attempting to protect its representational function against domination by a radically *other* mode of representation.'[67] Yet through its aesthetic and narrative allusions to both video games and early twentieth century cinemas, *Tron* reads as a text which is both deeply involved with emergent digital media and deeply engaged in a responsive process of formal refiguration. To read *Tron* as a conservatively cinematic response to an external threat elides the mutual dialogical relation between cinematic and digital media and imagery which plays out, diegetically and extradiegetically, throughout the film. The hybridity of *Tron*'s visual and narrative regime, in which analogue and digital interact and overlap, reflexively evokes a paradigmatic transformation of cinema which is undertaken in relation to – but not *against* – new modalities of experience offered by digital media technologies.

The ontology of the image has also been brought to bear on the role of the body – of character and spectator – in *Tron*. For Sobchack, the film's underdeveloped characters, and its enfolding of bodies into digital space restricts its potential to engage spectators in a meaningful way. She states that

> a responsive flattening of human body and character occurs, digitalizing both human motive and movement into discrete and serial pixels, so that *analogic physical progress* is reformulated as *binary information process*. Indeed, only superficial beings without "psyche", without depth, can successfully maneuver a space that exists solely to display.[68]

Within this paradigm, 'analogic physical progress' is the purpose of the body and character, while digitisation reduces bodies to 'binary information process.' The digital is aligned with 'display' and the threat of dehumanisation, denoting both experiential and narrative shallowness, while analogic representation is associated with strong characterisation and physicality. Within this paradigm, 'deeper' phenomenological response and narrative engagement occurs at the intersections between the body and analogue phenomena. Yet

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[66] Ibid.
[67] Ibid.
[68] Ibid., 257.

such a perspective forecloses much of the phenomenological potential of digital space at both narrative and aesthetic levels.

While Sobchack aligns digital processes with a flattening of the body and character, it is in fact the analogue as well as the digital which abstract (but do not negate) the on-screen body in *Tron*. The film's live-action/animation sequences, many of which are wholly analogue, themselves contribute significantly to this. In these sequences, Christopher Finch notes:

> The actors are dressed in white costumes overlaid with a pattern of black lines, representing computer circuits, and filmed in black limbo. Each frame is blown up into a large black-and-white transparency that can be reshot on an animation stand. The faces remain human but the figures are reduced to an almost cartoon-like web of lines. Lit from behind they can be made to glow as if illuminated from within.[69]

On a technical level, it is not the ontology of the digital itself which produces a distinct, dehumanising effect on represented bodies. In spite of being made to *look* computer-generated, characters' material bodies are imaged as part of the diegetically digital landscape through live-action and animation techniques. By subsuming analogue representations of the body and materiality into a diegetic virtual world, *Tron* creates an environment in which both subjects and cinematic form exist equivocally and reciprocally with digital phenomena. This is not a simple case of bodies themselves being diminished or subordinated to a conceptually separable digital threat, but of the body being imaginatively refigured in relation to new kinds of media experience.

Rather than straightforwardly diminishing bodies and/as characters, *Tron* suggests a relocation of their diegetic function. On entering the virtual world, Flynn's entire body is converted into data so that he ceases to exist in the physical world. This diegetic feature was not repeated in any subsequent VR films in this study, in which the body remains physically present (albeit unconscious) in the 'real' world, for example in *The Lawnmower Man*, *Strange Days* and *The Matrix*. When Flynn crosses the border into digital game space, moreover, the border is sealed – there is no back-and-forth between virtual and 'real' worlds until the game is over and he is released. Yet Flynn mirrors both the formal hybridity of the film and the situation of the spectator in that he is not, in fact, completely severed from his material existence. While Flynn's physical body is disassembled, his embodied identity (particularly his aptitude for games) is carried over into the virtual space, allowing him to adapt to and progress through it. Drawing from his pre-existing embodied

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[69] C. Finch, *Creating Movie Magic* (New York: Abbeville Press, 1984), 224-225.

memory, he finds that the controls of the recognisers are "just like the old arcade grips". Flynn is translated from his physical form into data so that he can be fully and phenomenally (re)embodied within the cinematically 'materialised' computer world.

Bukatman asserts that, in *Tron*, '[t]he body, with its analogic imperfections, is exempted from the digital world – this is precisely a *disembodied space*'.[70] Yet such an understanding risks eliding the film's diegetic and extradiegetic address to (and about) the body – downplaying the paradoxical corporeality of characters' kinaesthetic actions within the 'immaterial' digital world and the affective orientation of the spectator in relation to such actions. *Tron*'s employment of hyperkinetic visual effects produces a parallel spectatorial relation to the image, in which digital space seems to transform, through analogue and digital means, from an abstract interface to a site of fuller sensory engagement. Although characters are often subsumed by and subordinated to the virtual environment and to digital objects, their bodies operate as vessels in the mediation of digital ludic experience. Rather than producing a straightforward fantasy of disembodiment, then, *Tron*'s virtual space is predicated upon a reconnection of the sensorium, and the cinema, to a new kind of phenomenal field.

Mapping Virtual Space

As I have suggested throughout this chapter, *Tron*'s fantasy of total immersion communicates a sense of qualified continuity between worlds which operates to orientate the viewer in relation to diegetic digital space. This production of real-virtual continuity is perhaps most recognisable in the motif of grids and wireframe imagery, which produce a sense of spatial and phenomenological cohesion between both real-world and computer-world. The honeycombed office cubicles in Alan's workplace, for example, create a visual parallel with the prison cells in the computer-world. In the film's opening shots, computer-generated lines and dots of light, evocative of circuit boards, match-dissolve into a shot of the real-world city at night. With the exception of the very last scene, in fact, all of *Tron*'s real-world sequences take place at night, and bear a striking resemblance to the blackness of the computer grid's negative space. Buildings and the ENCOM helicopter are illuminated by glowing geometric lines in much the same way as the spaces and objects in the computer-world.

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[70] *Terminal Identity*, 223.

The irruption of the grid into diegetic reality is allusive of the impact of 'immaterial' digital phenomena upon everyday lived reality: the ontological constitution of the world which cinema has long striven to represent. In negotiating this challenge, the connotations which *Tron* ascribes to these omnipresent grids and wireframe images shift as the narrative progresses. Initially, the grid operates as a motif for oppressive control – of ENCOM in the real-world and the MCP in the computer-world. Yet as Flynn gradually masters the coordinates of this new, bodily engaging virtual space, the grid becomes expansive and orientating – a symbol of topographical naturalisation for both character and spectator. Thus *Tron* mobilises, apprehends and progressively tames this motif of digital 'advancement', and the challenges it represents, through coalescent narrative and aesthetic means.

Despite this sense of orienting continuity, *Tron*'s (digital and analogue) special effects imagery works to augment the sense of a 'living', three-dimensional digital space which supersedes the comparative banality of the diegetic 'real-world' in terms of affective sensory immersion and apparent immersive depth. On *Tron*'s mobilisation of abstract, minimalist grid imagery, Bukatman states that the film

> represents a mapping of a three-dimensional sculptural space onto the flat terrain of a cinema or video screen, which drastically changes the bodily integration with that space. The body must now appropriate the space as a *perceiving* body.[71]

Through its narrative-aesthetic representation of a world beyond the screen, *Tron* draws attention to the overtly schematized construction in ways which foreground the spectator's subjective perception and induce a sense of exploratory depth beyond contemporary cinematic paradigms. The diegetic digital world presents new experiential possibilities which mirror those that digital media technologies offer both spectator and filmmaker. The overtly constructed appearance of the film's whole narrative world reflexively evokes the computerised post-production processes behind the film's actual digital imagery. As Robert Rivlin notes:

> For the artist, a three-dimensional object or landscape portrayed on a two-dimensional surface merely has to look real. But a model in the computer database must, for all intents and purposes, actually simulate the properties of a three-dimensional object in nature.[72]

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[71] Ibid., 221.
[72] R. Rivlin, cited in *Digital Visual Effects in Cinema*, 17.

Tron's reflexive presentation of three-dimensional, sculptural space upon the 'flat terrain' of the screen is achieved not only through three-dimensional CGI, but through analogue elements such as its painstakingly modelled, sculptural sets and its lively, luminescent animation. By displacing the impetus to 'look real', *Tron* thus reflexively employs analogue aesthetics techniques in a way which is mimetic of the production process behind digital imagery, and symbolic of cinema's own transformative 'materialisation' of an immaterial, digital space.

In its metaphorical claim to reveal a digital world beyond the interface, *Tron* appeals both to cinema's ability to construct *and* its ability to represent. As Telotte notes, the complementary efforts of various digital effects companies results in 'a look that takes advantage of the very limitations of the then state-of-the-art CGI effects, their clearly non-realistic appearance.'[73] While the computer world is obviously largely modelled on 'real' phenomena, Telotte points out that it 'ultimately does not correspond to anything that actually exists, and indeed seems cobbled together from the various programs the ENCOM mainframe has appropriated for its own uses.'[74] As critic Charles Solomon notes, they 'look something like drawings and something like photographs, but not entirely like either'[75]. For Telotte, '[t]he sort of compromise aesthetic that results helps build that sense of alternate reality without completely estranging audiences from this pointedly constructed, unnatural world.'[76] Imbuing its environments with both spectacular verisimilitude and radical abstractness, *Tron* playfully purports to represent a living environment, which builds upon the assumption of real-world paradigms of spatial and phenomenal integrity.

The simplicity of *Tron*'s analogue and CG landscapes and objects appeals to the constitutive activity of the spectator in a way which evokes the Kantian concept of apperception.[77] As Michael Heim has noted, '[p]erception goes toward entities and registers their colour, shape, texture and other properties' while apperception 'perceives not only entities but also notices that which accompanies the perception of any entity: our self-activity.'[78] On one hand, *Tron*'s minimalist, Euclidean shapes lack texture and detail, arguably aligning them more with the semiotic than the sensual. But this very lack of detail encourages constitutive perceptual activity. As in Brooker's experience of 1980s video

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[73] *The Mouse Machine*, 152.
[74] Ibid., 152-153.
[75] C. Solomon, cited in ibid., 153.
[76] Ibid.
[77] Kant introduces the notion of apperception in 1871, in his chapter 'The Transcendental Deconstruction of the Categories' in id. (P. Guyer trans.), *Critique of Pure Reason* (Cambridge: Cambridge University Press, 1998).
[78] *Cyberspace/Cyberbodies/Cyberpunk*, 72.

games, these images elicit an imaginative relation, in which diegetic objects are imbued with phenomenological gravity. Conceptual artist Syd Mead (who worked on the design of *Tron*'s computer world) states '[t]he tank featured in *TRON* started as a quick review of the images that instantly say 'tank."[79] The viewer of *Tron* apprehends a tank, but also apprehends, in an apperceptive manner, the act of apprehending the digital object and actively imbuing it with significance. As Bukatman notes, *Tron*'s game world is 'an infinite, *potential* space that does not exist until it is occupied and thereby delimited."[80] Game arenas 'power-up' as characters enter them; grid-bugs and lightcycles form out of nothingness when they are willed to do so – they exist only insofar as they are experienced. Alongside *Tron*'s characters, the spectator is thus called upon to notice their active perceptual responses to the film's diegetically materialised immaterial world; reflexively evoking the imaginative and embodied processes by which we apprehend and substantiate worldly phenomena as experience.

Thus *Tron*'s process of mapping virtual space is contingent on both analogue and digital, narrative and aesthetic factors. In its quest to define and map digital space and its existential parameters, Bukatman notes that *Tron* constitutes

> a deeply consequential gesture toward accepting and cognizing the existence of cyberspace and toward endowing its existence with phenomenological significance. If its narrative is often incoherent, and its characters lack "substance", then these flaws can perhaps be regarded as indicative of the film's struggle to define a new space; its failures then become symptomatic of the very ambiguities and uncertainties that cyberspace represents.[81]

Bukatman's analysis highlights the fact that *Tron* is not simply a reflection of 'postmodern' culture in the sense that it communicates an experiential world increasingly characterised by interiority, fragmentation and flux. Rather, Bukatman identifies *Tron* as a productive, extrapolative reflection upon how 'immaterial' phenomena become materialised as experience. But while its perceived narrative shortcomings certainly resonate with the challenge which digital media represents to narrative cinema, to consider this a failure risks eliding how *Tron*'s struggle to define and visualise digital space variously evinces, substantiates and prefigures the narrative *and* aesthetic impacts of digital media on cinema and everyday embodied experience.

For Bukatman, *Tron*'s narrative 'denies the need for accommodation and finally denies that the world has changed at all, while its special effects construct an undeniably

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[79] *Terminal Identity*, 217.
[80] Ibid., 220.
[81] Ibid., 215.

new and important space into which it thrusts its viewers, propelling them toward a perceptual accommodation with the demands of a terminal reality."[82] Yet this assertion is problematic given the tight coalescence of narrative and spectacle across *Tron*'s diegetic and extradiegetic operations. In its narrative mapping of 'postmodern hyperspace', its orienting spatial schematisation, its clean Euclidean shapes, and the suggestive continuities it sustains between real and virtual realms, *Tron* works to define and map the virtual as an inhabitable, phenomenologically complex space and to locate the spectator as a perceiving subject within it. Rather than constituting a denial of change, *Tron*'s narrative reflects a process of transformative engagement with digital aesthetics and engagements which would continue to inflect cinematic spectatorship. Its approximation and appropriation of real world digital encounters create a narrative space in which the digital becomes materialised, images are agents, and motivation is based upon Flynn's – and the spectator's – phenomenal desire to 'play'.

Conclusion

While *Tron*'s lukewarm reception arguably reflects its failure to capture the zeitgeist of the early 1980s, subsequent popular responses to the film often betray a sense of nostalgic fondness, and moreover a recognition of the film's seminal status in popular culture. *Radio Times*' Alan Jones calls *Tron* 'a complex but light-hearted adventure', and considers that 'it would probably be fair to credit this Disney movie with being the forerunner of the *Toy Story* movies.'[83] *Film4* lauds *Tron* as '[t]he film that trailblazed virtual reality and digital special effects', introducing the 'humanity/technology themes that would surface in later cyberpunk fantasies.'[84] *Tron*'s subsequent influence has also been noted in scholarly analyses. Daniel Dinello for instance points out that while *Tron* has been '[u]nacknowledged apparently because of its lightweight Disney sensibility… [it] seems to have influenced William Gibson's highly regarded vision of cyberspace in *Neuromancer*.'[85]

Perhaps some earlier discourse on *Tron* can be considered characteristic of a time before the digital image, and the modalities of digitally mediated experience, had

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[82] Ibid., 227.
[83] A. Jones, 'Tron' on RadioTimes.com [available at http://www.radiotimes.com/film/cbtj7/*tron*, accessed 12/02/2016].
[84] Anon., 'Tron' on Film4com [available at http://www.film4.com/reviews/1982/tron, accessed 11/02/2016].
[85] D. Dinello, *Technophobia! Science Fiction Visions of Posthuman Technology* (Austin: University of Texas Press, 2005), 156.

significantly influenced cinematic form; a moment at which it was difficult to conceive of CGI as functioning very far beyond radical audiovisual novelty. As I have argued, however, *Tron*'s engagement with virtual embodiment and its materialisation of immaterial, conceptual space work to address and contain the proliferating influence of digital images and media forms upon cinema. As Gurevitch points out, '*Tron* marked Hollywood's first recognition of the potential for computing technology to reshape the nature of the filmic image.'[86] At this time of upheaval, *Tron* initiates a significant challenge to aesthetic and narrative conventions – taking up the interactive and graphical modalities of digital gaming in order to refigure established methods of film storytelling, characterisation and representation through experimental, imitative and yet still reflexively *cinematic* narrative-aesthetic means.

As I noted in the introduction to this study, the conception of cinema as an assemblage of distinct spectacular and narrative components has progressively undergone a revision, owing largely to cinema's evolving hybridity with digital media forms. Conceiving of narrative as immersive and meaningful, versus spectacle as disruptive and alienating, is a dichotomy which proves problematic in analysing *Tron*, given the film's intense formal-narrative interactions, and its prescient foreshadowing of how the languages of cinema and digital media would become increasingly intertwined. Despite its narrative 'weaknesses' by established classical standards, *Tron* is instrumental in inaugurating the digital image as a component of narrative, and in negotiating the impact of digital media's experiential modalities on cinematic storytelling. However much it missed the mark with contemporary popular audiences, *Tron* assumes a spectator familiar with the pleasures and limitations of contemporary video games, and for whom a journey beyond the interface constitutes a compelling narrative experience. To describe the CG image as a narrative 'disruption' is not only problematic in relation to *Tron*, but in relation to popular cinema more generally, in which technologies have been historically taken up and refigured in line with evolving formal impetuses and popular cultural shifts. As Gurevitch astutely points out, such a charge implies, 'in the frequently asserted but seldom accurate age old rhetorical sleight of hand, that Hollywood is to be an unwitting victim of a new technology.'[87]

As Lisa Purse has noted, '[m]uch of the time the thematic dimension of a film will speak in some way to the cultural moment in which it was made, and this is equally true of

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[86] 'The Cinemas of Interactions'.
[87] Ibid.

the digital effects spectacle.'[88] As I have tried to highlight, *Tron* moreover seems to speak, bidirectionally, *beyond* its cultural moment. Even as it speaks of cinema's future, it also speaks of cinema's past; *Tron*'s subsequent influence on cinema and gaming is equalled by its debt to preclassical modes of cinematic representation. In staging a kind of revisionist rebirth, *Tron* eschews both the impetus to represent the material world and the impetus to produce a narrative within the classical paradigm. *Tron*'s immersive, affective and playful mode of spectatorial address works to reconcile the alterity between traditional cinematic viewership and emergent modes that offer heightened immersion and interactivity, even as they seem to become progressively more 'virtual', less material, less 'cinematic'. Containing the digital image within an equally spectacular analogue and narrative framework, *Tron* subsumes it within a primordially cinematic (re)presentational and narrative ontology – which is itself refigured in line with the demands of an increasingly interactive digital media landscape. As I have argued, a reading of narrative *and* spectacle as coalescent is thus paramount in understanding *Tron*'s relation to – and commentary on – cinema's past, present and future.

[88] *Digital Imaging in Popular Cinema*, 23.

Chapter Two

"More PR than VR"? *The Lawnmower Man as* Spectacular SF

> 'By the turn of the millennium a technology known as VIRTUAL REALITY will be in widespread use. It will allow you to enter computer generated artificial worlds as unlimited as the imagination itself. Its creators foresee millions of positive uses – while others fear it as a new form of mind control…'

The above intertitle, displayed at the beginning of Brett Leonard's *The Lawnmower Man* (1992), reflects the profound ambiguities at the heart of the film's depiction of VR. *The Lawnmower Man* has been discussed both as celebratory of (or even advertising) VR and as profoundly phobic of such technologies. Analyses often imply that the film's spectacular digital special effects contradict its 'dystopian' narrative depiction of VR 'gone bad'. This tendency is perhaps best illustrated by Brooks Landon's statement that *The Lawnmower Man* typifies how 'an SF film uses its plot to say "no, no!" to a new technology, while the powerful look of its foregrounded special effects unmistakably says "yes, yes!"'[1] But here I contend that *The Lawnmower Man*'s narrative is far from unproblematically negative about VR, and moreover that the film's spectacular visuals *support* its ambivalent take on the technology rather than straightforwardly contradicting or subordinating it. As a film which is both specifically *about* virtual technologies and the *product of* virtual technologies, I contend that *The Lawnmower Man*'s spectacular imagery is anchored firmly within its narrative project. In what follows, I elaborate on how these spectacular and narrative elements conjoin in specific and often unexpected ways which shore up problems with the idea that spectacular imagery interrupts (cerebral) narrative flow in favour of sequestered moments of (bodily affective) spectacle.[2] Against ideas of the spectator as an awestruck, bewildered captive in the spectacular moment, whose passive body is acted upon and whose mind is bypassed, *The Lawnmower Man* highlights the propensity for spectacular 'virtual' spaces to operate as narrative and conceptual elements.

In undertaking this inquiry, I first explore how *The Lawnmower Man* extrapolates on VR as a real-life industrial product and, moreover, as a cultural mythology. Like *Tron* a decade before, *The Lawnmower Man* takes up the impetus to explore, explain and (it claims) prefigure potential futures of digital interaction, authoring a frame of reference through

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[1] *The Aesthetics of Ambivalence*, 157.
[2] Ibid., 45.

which a spectator might perceptually apprehend new technological images diegetically, and new media technologies extradiegetically. Through the coalescence of spectacular audiovisual effects and narrative, VR is variously adopted, adapted and hyperbolically exceeded in ways which ultimately affirm the role of cinema – and SF cinema in particular – in producing conceptually and affectively evocative visions of the mediated present and future.

The Lawnmower Man's authoritative visioning of VR to this end has been widely noted and often lamented. As Rosenbaum et al. note, the film was widely criticised for generating 'unrealistic expectations around VR, channelling 'excitement' about its potential into 'unrealizable "hype".'[3] One scientist referred to the film as 'more PR than VR'.[4] On the other side of the fence, David Kirby finds this backlash of criticism disingenuous. He asks:

> Would VR researchers have garnered as much support and research money for VR work as they did if not for the attention generated by *The Lawnmower Man*? [It] certainly overplayed the time scale for the development of this technology but it is fair to say that the public would not have known about VR's potential if not for the film.[5]

Here, Kirby apprehends the real-world impact of cultural imaginaries which variously (and indirectly) inflect real world technological innovation. *The Lawnmower Man*'s authoritative allusion to the 'real' context of VR allows the film to collude in the shaping of VR as a cultural mythology. The film assumes, approximates and diegetically exceeds the graphical and experiential capabilities of actual, real-world VR applications in order to produce an experience of VR which is *better than* actual VR (contemporary versions of which remained largely unsubstantiated in reality). As Kirby notes:

> [*The Lawnmower Man*] significantly impacted VR's development by doing what popular books and magazine articles could not – it *visualized* a VR experience in such a way that stimulated mainstream audiences' desire to see this vision become a reality.[6]

As an SF narrative, *The Lawnmower Man* is able to tell a story about VR which VR itself is unable to communicate, and to produce an affective and accessible 'VR' experience

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[3] L. Rosenbaum, G. Burdea and S. Tachi, 'VR Reborn' in *IEEE Computer Graphics and Applications*, vol. 18, no 1 (1998), 21.
[4] Cited in A. Balsamo, 'Signal to Noise: On the Meaning of Cyberpunk Subculture' in *Communication in the Age of Virtual Reality*, 347.
[5] D. A. Kirby, 'Creating a Techno-Mythology for a New Age: The Production History of *The Lawnmower Man*' in D. L. Ferro and E. G. Swedin (eds.), *Science Fiction and Computing: Essays on Interlinked Domains* (Jefferson, NC: McFarland, 2011), 228.
[6] Ibid., 228.

through cinema. The film's reflexive assertion of influence is largely communicated through its authoritative allusions to 'real' VR, and its overarching claim to prescience – which are also clearly evident in the opening intertitle. As a contemporaneous proto-medium, actual VR is at once promoted and displaced in ways which variously engender interest in the medium and reframe expectations of what VR, in reality, should 'be'.

In further exploring *The Lawnmower Man*'s ambivalent figuring of VR's future, I mobilise Darko Suvin's cognitive estrangement thesis,[7] as well as related discourse on utopian and dystopian SF. I bring these to bear on *The Lawnmower Man*'s thematic *and* aesthetic evocations of the familiarity and alien-ness, the pleasures and the dangers, of its own authored VR imaginary. I assert that *The Lawnmower Man*'s exploration of VR through mutually consistent spectacular and narrative elements elicits both an awareness of mediation and a reflection on its utopian and dystopian implications, fostering a critical confluence of diegetic technologies and extradiegetic conditions of real, or 'potential' possibility. Through this line of inquiry I seek to complicate conceptions of popular (SF) cinema spectators as passive, awed and uncritical consumers of (narratively disjunctive) special effects, and moreover to assert that while *The Lawnmower Man* produces an awareness of mediation, this does not operate as narratively or cognitively disruptive, particularly within the subgeneric context of the VR film which, after all, centralises the embodied and existential impacts of mediated experience.

The Lawnmower Man and the Emergence of VR

As the first self-proclaimed VR feature film, *The Lawnmower Man* emerged amidst a surge of interest in VR technologies in science, industry and the popular imaginary. A decade after the box office failure of *Tron*, *The Lawnmower Man*'s production and release testifies to a renewed fascination with representations of digital embodiment. The film constitutes the first instance of Hollywood cinema directly engaging with real-world VR technologies, and situating this emergent technology within a cinematic imaginary framework. Before further exploring how *The Lawnmower Man* engages with and shapes VR within the contemporary cultural imaginary, it is worth placing the film within the context of contemporary technological and cultural developments in VR throughout the late 1980s and early 1990s.

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[7] D. Suvin, *Metamorphoses of Science Fiction*: *On the Poetics and History of a Literary Genre* (New Haven, CT: Yale University Press, 1979).

VR technologies had begun to emerge well before *The Lawnmower Man*'s release. Established in 1985 by Michael McGreevy, the VIVED (Virtual Visual Environment Display) project was an early virtual environment system developed at NASA, which culminated in the creation of an immersive computer graphics simulation system by 1987. This project remained largely unknown to the general public, but by 1989 VR began to enter more fully into the cultural consciousness. Computer scientist Jaron Lanier, to whom the term 'virtual reality' itself is often attributed,[8] was expanding research on VR technologies with his company, VPL. Alongside another software company – Autodesk – VPL showcased their VR products at computer graphics conference SIGGRAPH '89.[9] Also in 1989, LEEP Optics developed 'Cyberface', the first commercial head-mounted VR display, and Mattel introduced the 'Power Glove' – a tactile interface designed to approximate VR experience which was marketed throughout 1990 (but ultimately failed commercially). In Autumn 1989, underground cyberpunk magazine *Mondo 2000* established a long-lived interest in VR in an article on Autodesk's experimentations.[10] VR was simultaneously gaining more mainstream media exposure: also in 1989, the *New York Times* featured a front-page article about VR.[11] 1990 saw the creation of sci.virtual-worlds (scivw) by Robert Jacobson and Howard Rheingold at the University of Washington, and in 1991, Rheingold published his seminal book, *Virtual Reality*.[12] The US Senate had a hearing about VR in 1992.[13] In the same year, the United States' National Research Council established the Committee on Virtual Reality Research and Development, which was charged to 'recommend a national research and development agenda in the area of virtual reality.'[14]

In the period leading up to the release of *The Lawnmower Man*, then, VR enjoyed a great deal of popular cultural, academic and even governmental attention. Despite being a broadly familiar part of the contemporary cultural imaginary by the early 1990s, however, it is clear that the discursive conception of VR across these broad contexts was vague and multifaceted. As Chris Chesher notes, 'VR originated within marginal subcultures: from science fiction, cyberpunk, and computer hacker culture, and from institutions including

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[8] F. Biocca, T. Kim and M. Levy, 'The Vision of Virtual Reality' in *Communication in the Age of Virtual Reality*, 4.
[9] L. Press, 'SIGGRAPH '89 – Tomorrow's PC Today' in *Communications of the ACM*, vol. 33, no. 3 (March 1990), 274-279.
[10] R. Walser, 'Is it Live or is it Autodesk?' in *Mondo 2000* (Autumn 1989), 16-17.
[11] A. Pollack, 'What is Artificial Reality? Wear a Computer and See' in *New York Times* (10/04/1989), 1.
[12] H. Rheingold, *Virtual Reality* (New York: Summit, 1991).
[13] C. Chesher, 'Colonizing Virtual Reality: Construction of the Discourse of Virtual Reality, 1984-1992' in *Cultronix*, vol. 1, no. 1 (Summer 1994) [available at http://cultronix.eserver.org/chesher, accessed 13/12/2015], no pagination.
[14] N. I. Durlach and A. S. Mavor (eds.), *Virtual Reality: Scientific and Technological Challenges* (Washington, DC: National Academy Press, 1994), vii.

NASA, computer companies, and the military.'[15] Moreover, both as a technology and a cultural concept, VR did not irrupt into empty terrain, but 'into such existing fields as entertainment, art, architecture, design and medicine', diverse cultural and industrial areas which would take up and variously define its (real and imagined) moral, ideological and experiential parameters. As Chesher notes:

> While proponents claimed the idea of VR was new, they positioned it as a natural and inevitable outgrowth of the past by making connections to familiar values, ideology and myth. They emphasized its unique advantages over other technologies, but packaged it in familiar cultural wrapping, constructing a historical narrative with VR as its necessary conclusion. They then projected VR's development into a utopian future.[16]

This familiarising project was pursued in diverse and overlapping ways, as VR was conceptualised and reconceptualised through diverse moral and ideological framings, promoted not only as a paradigm shift for computers, but for society itself.[17]

VR has been significantly framed, explored and interrogated in terms of its intended effect on the body – whether VR is, or ought to be, an inherently embodied and tactile experience, or a cerebral transcendence of the flesh. In 1997, Ken Hillis for instance asserts that VR renders bodies as 'automata'. He states that 'our animalistic and all too finite physical bodies are thought secondary to our minds and representational forms – a dynamic that is built into virtual technologies.'[18] *The Lawnmower Man* is often read as exhibiting a similarly dismissive attitude toward the body, in favour of an emphasis on the mind. Michelle Chilcoat argues that in films like *The Lawnmower Man*, *Strange Days* and *The Matrix*, 'the body… is represented as a vulnerable mass of flesh that the mind can virtually do without… characters are represented as capable of being or doing anything they desire as long as they put their minds to it.' [19] In fact, however, *The Lawnmower Man* sits in an uneasy critical relation to the Cartesian worldview often ascribed to VR and its representations in popular cinema, due to its narrative and spectacular address *to* and *about* the body, and its ultimate insistence that, fundamentally, to be human is to be embodied. While VR is cast as a potentially dangerous, disembodying technology on one hand, on the

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[15] 'Colonizing Virtual Reality'.
[16] Ibid.
[17] Ibid.
[18] K. Hillis, *Digital Sensations: Space, Identity and Embodiment in Virtual Reality* (Minneapolis: University of Minnesota Press, 1997), xv-xvi.
[19] M. Chilcoat, 'Brain Sex, Cyberpunk Cinema, Feminism, and the Dis/Location of Heterosexuality' in *NWSA Journal*, vol.16, no. 2 (Summer 2004), 156.

other it is *idealised* as a potential vehicle for perceptual expansion and enhanced embodied awareness.

VPL, Lanier and *The Lawnmower Man*

To further understand the film's dialectical representations of ideal (embodied) VR and dystopian (disembodied) VR, it is worth examining the extent to which *The Lawnmower Man* was shaped by its director's interests in the work of a particular set of VR pioneers. From the 1980s onwards, Leonard was moving in the circles of West Coast computer scientists such as Lanier, Nicholas Negroponte and Steve Wozniak. Kirby notes that Leonard's exposure to embryonic VR technologies was a result of his integration into this 'social network of digerati' in northern California.[20] In particular, Lanier's work at VPL and his personal philosophy on VR were integral points of inspiration for Leonard's film. Leonard contacted Lanier after having acquired the film rights to Stephen King's short story 'The Lawnmower Man'. The director had taken on the King-titled project in order to secure funding, telling Lanier that he would transform it into a 'weird science fiction biography of you and your company.'[21] In turn, Leonard requested information on Lanier's research, and some old prototypes which were eventually used in the production.[22] King's short story, meanwhile, was largely condensed into a single, ancillary scene – in which Jobe telepathically commandeers a lawnmower to murder Billy's father.

Lanier's attitude to VR typifies broader discursive attempts to conceive of the technology as distinct from imagined forms of disembodied cybernetic experience. In an interview with *Whole Earth Review*, Lanier explains his reluctant adoption of the term 'virtual reality'. He states that, while 'virtual' is "not necessarily the right word", it is "better than "artificial"… better than "synthetic."" While describing VR as "something that exists only as an electronic representation, which has no other concrete existence", he simultaneously bespeaks a wish to distinguish VR from its cybernetic cultural connotations. He states that, while "[s]ome people call it "cyberspace" after William Gibson… I think that's dreadful. It's very limiting and… computery."[23] Lanier continues:

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[20] D. Kirby, 'The Future is Now' in *Social Studies of Science*, vol. 40, no. 1 (2010), 47.
[21] See J. Lanier, 'Virtual Reality and Microsoft Research' in P. Springer and M. Carson, (eds.), *Pioneers of Digital: Success Stories from Leaders in Advertising, Marketing, Search and Social Media* (London: Kogan Page, 2012), 53.
[22] 'The Future is Now', 47.
[23] K. Kelly, 'Virtual Reality: An Interview with Jaron Lanier' in *Whole Earth Review* (Autumn 1999), 110.

> Virtual reality is not a computer. We are speaking about a technology that uses computerized clothing to synthesize shared reality. It recreates our relationship with the physical world in a new plane, no more, no less. It doesn't affect the subjective world: it doesn't have anything to do directly with what's going on inside your brain. It only has to do with what your sense organs perceive. The physical world, the thing on the other side of your sense organs, is received through these five holes, the eyes, and the ears, and the nose, and the mouth, and the skin.[24]

Lanier's aversion to VR as a kind of Cartesian 'brain space' is reflected in the nature of the research undertaken at his company, VPL.[25] Frank Biocca and Mark Levy recount how engineers at VPL 'experimented with reorganizing the relationship between bodily movement and sensory feedback', in which '[b]ody movements were linked to nonbodily activity.'[26] The primacy of the body and its physiology formed the basis from which VPL's virtual worlds were designed and generated. Lanier imagined VR as a conduit for otherworldly sensory experiences such as 'crawling into the mouth of a friend', in which visuals were modulated in accordance with physiological responses.[27] As Lanier postulated, 'if you were angry you could turn into a red lobster for a while.'[28] VPL's research evinces a focus on embodiment and physiology which, far from being displaced, dictate the content of the VR experience. Lanier's philosophy and research at VPL moreover resonates with Jeff Malpas' argument that 'the virtual does not constitute an autonomous, independent or "closed" system, but is instead always dependent, in a variety of ways, on the everyday world within which it is embedded'.[29] Such research is predicated upon the provision of an even more acute, or immediate relation to the world than unmediated perception. Through the 'electronic rearrangement and amplification of the senses', these experiments figure VR as a means through which to augment affective or emotional responses: 'to make the senses raw and sensitive by altering the way we relate to the world.'[30]

The Lawnmower Man clearly bears the influence of Lanier's contributions to VR discourse and practice, figuring VR as a tactile, sensory and embodied experience. Lanier's 'red lobster' scenario is mirrored in one of the film's most renowned scenes – in which Jobe persuades Marnie to join him in cyberspace. Initially, the lovers are harmoniously conjoined in a blissful digital embrace. Before long, however, Jobe's lust and rage

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[24] Ibid.
[25] Lanier founded VPL with Thomas Zimmerman, inventor of the Data Glove.
[26] F. Biocca and M. Levy, 'Communication Applications of Virtual Reality' in *Communication in the Age of Virtual Reality*, 136.
[27] Ibid.
[28] J. Lanier and F. Biocca, 'An Insider's View of the Future of Virtual Reality' in *Journal of Communication,* vol. 42, no. 4, (Autumn 1992), 162.
[29] J. Malpas, 'On the Non-autonomy of the Virtual' in *Convergence*, vol. 15 no. 2 (May 2009), 136.
[30] 'Communication Applications of Virtual Reality', 136.

transform him into a fearsome monster who penetrates Marnie's digitised body with waves of red light, leaving her traumatised and insensible. In this moment, Jobe's burgeoning intellectual and sexual frustration, which has been narratively established in the real world, has shaped his perceptions, actions and selfhood in VR. As in Lanier's scenario, the body and its physiological rhythms dictate the content of the VR fantasy.

For Young, Jobe and Marnie's short-lived virtual embrace constitutes the film's 'sole moment of digital bliss'.[31] I contend, however, that *The Lawnmower Man*'s promotion of VR is far more sustained. Several other early sequences operate to idealise VR as a tactile, embodied – and thus positive – experience. The very first VR scene, for instance, presents shots of Dr Angelo hooked up to the apparatus intercut with shots of his humanoid avatar within the virtual world. As Angelo performs hand movements, the smooth, chrominescent avatar mimics his actions, emphasising the continuity between physical and virtual bodies and galvanising an association between organic, embodied movement and abstract virtual action. POV shots within this sequence are additionally marked by the presence of an avatar hand. A primary executor of intentional action and receptor of tactile stimulus, the hand is usually disassociated from the cinematic experience. Its presence here both evokes the haptic interactivity of VR and emphasises cinema's propensity to represent this, despite the latter medium's lack of literal physical interactivity. In an evocative extradiegetic parallel, the physiological contingency of virtual experience is also central to the actualisation of the film's avatar images. Not only is *The Lawnmower Man* the first live-action film to include body motion-capture,[32] it also represents motion capture technology diegetically – as Angelo's apparatus reproduces his bodily movement in VR. The film's reflexive technical employment of the kinds of technologies it thematises here helps to spin the web of connections between the film's narrative and spectacular, diegetic and extradiegetic operations.

West Coast VR and the Dangers of Disembodiment

Despite its promotion of a particular kind of VR, it is already clear that *The Lawnmower Man* does not constitute an uncritical or unambiguous celebration of the technology. Indeed, *The Lawnmower Man* also postulates what could happen when VR gets out of hand, facilitating the excision of the mind from the body. As is becoming clear, it is not so much

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[31] *The Cinema Dreams Its Rivals*, 224.
[32] Anon., 'News Briefs' in *Computer*, vol. 40, no. 9 (Sept. 2007), 13-16.

VR itself which is vilified in this diegetic world, but its appropriation within a particular ideology. Drawing from Michael Heim, who identifies a broad split between contemporary VR advocates on the West and East coasts of the United States,[33] Kirby points out that in contrast to the ideals of sensory and embodied 'enhancement' pursued by the former, the latter promoted VR's 'potential for military and industrial uses'. It is for this reason, he posits, that they are cast as the archetypal villains in *The Lawnmower Man*.[34] This 'East Coast' attitude is represented in Angelo's employer – the ominous 'Shop', whose shady, elusive and nameless boss appears only as a disembodied head on a giant screen. Narrative conflict is derived through the negative casting of those structures which mean to militarise VR, which clash with Angelo's benign and progressive dreams about VR's possibilities. It is not VR technology *itself* which acts as antagonist, but a rival and contradictory ideology, aligned with cold cerebralism and a disregard for the physical body. Moreover, Jobe himself functions less as the villain than the terrain on which a conflict is played out. As Kirby notes, 'Jobe may well have become a beneficent cyber-God if the military bad guy had not replaced his educational smart drugs with a formula containing "aggression factors."'[35]

In concurrence with Lanier's reluctance to align VR with 'cyberspace' or computing, *The Lawnmower Man*'s negative casting of the military reads as a prophylactic against the kinds of discourses which Lanier, too, sought to resist. VR's cyberspatial, cerebral associations are invoked and rejected within the film's moral framework in order to counter the subsumption of VR into what Deborah Lupton identifies as a 'central utopian discourse around computer technology [which] is the potential offered by computers for humans to escape the body.'[36] By locating the spectacular role of VR sequences within a broader narrative context, *The Lawnmower Man*'s moral rejection of disembodiment, and its idealisation of progressive forms of *re*-embodiment, become increasingly apparent.

The Lawnmower Man's ambivalent idealisation of VR becomes clearer when read against the film's casting of more familiar computational technologies. This alterity is redolent of how VR and computing have often been viewed more as opposites than as continuous forms. As Chesher notes, '[u]nlike other types of computing, which require symbolic abstraction, VR allows dealing with computers to be a direct experience –

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[33] See M. Heim, *The Metaphysics of Virtual Reality* (New York: Oxford University Press, 1993), 140-141.
[34] 'Creating a Techno-Mythology for a New Age', 226.
[35] Ibid.
[36] D. Lupton, 'The Embodied Computer/User' in *Cyberspace/Cyberbodies/Cyberpunk*, 100.

therefore something familiar and attractive.'[37] The disjunction between computing and VR is strongly articulated in one particular scene, in which Jobe engages in a form of accelerated learning through an encyclopaedic computer program. He sits stationary opposite a computer monitor which, in stark contrast to the limitless digital vistas of the VR sequences, is square and finite, and takes up less than half of the frame. He wears a small headset and operates a levitating 'mouse', as pop-up windows narrate 'The Dawn of Civilisation', exhibiting classical works of art such as Van Gogh's *The Starry Night*, Matisse's *La Danse* and Michelangelo's *The Creation of Adam.* The program's cursor resembles, fittingly, the God of the latter painting's disembodied hand. Reduced to an objectified skeuomorph, here the hand is defined by its function to point, scroll and select. Jobe's headset also appears to function purely to facilitate cerebral comprehension – there is nothing to suggest that the headset in any way alters his audiovisual or tactile experience. If it does, this is moot to the spectator – unlike in the VR sequences, we are not privy to Jobe's embodied point of view here. As the sequence progresses, the computer's narration quickens exponentially, garbled beyond spectatorial comprehension to the point that recognisable images are replaced by rapidly morphing geometric landscapes and shapes – a cerebrally assaultive excess of information.

Compared to the VR sequences, this representation of computing is striking in how it alienates us from Jobe's (purely informational) experience. Far from the luminescent, mobile and immersive experience engendered in the VR sequences, this representation of the PC interface is comparatively abstract and alien. The scene lays bare the overarching disjunction between real-world computer interfacing and the imagined, embodied VR engagements which *The Lawnmower Man* so spectacularly approximates. This extrapolative representation of near-future computing resonates with contemporary anxieties surrounding the unknowable vastness of PC networks and the coming of the World Wide Web. As Young points out, 'the computer network circa 1992 was an ambiguous "space" where communication was free, open, largely unregulated and apparently unregulatable'[38], and the Web was contemporaneously 'known to most Americans through news stories about hackers and computer crime or by way of semi-utopian hacker fantasies' like *War Games* (John Badham, 1983).[39] *The Lawnmower Man*'s allusive representation of emergent informational networks is far more 'technophobic' than its representation of VR –

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[37] 'Colonizing Virtual Reality'.
[38] *The Cinema Dreams Its Rivals,* xii.
[39] Ibid., xi-xii.

particularly given that these kinds of purely cerebral experiences catalyse Jobe's jettisoning of his body in favour of a dehumanised, cybernetic existence.

That this experience is marked out as decisively *not* VR complicates Young's assertion that *The Lawnmower Man* uses VR as a totalising signifier – to distil 'various digital media currents down to a single, representative medium'.[40] Young also considers that, in films such as *The Lawnmower Man*, 'cyberphobic' representations of rival media technologies function in a manner which is defensive of the function and conventions of cinematic spectatorship. He argues that:

> Hollywood's disproportional use of dystopian digital media myths… produces an illuminating allegory of the compromised position in which the American cinematic institution finds itself regarding its own reception by the increasingly diverse, mass-mediated publics of the '90s. Cyberphobia narrates digital media as horrific to the degree that they are literally social and interactive… to the degree that they do not foster an experience that resembles classical film spectatorship.[41]

However, I am uneasy with the idea that a film like *The Lawnmower Man*, particularly one directed by a champion of VR such as Leonard, would be primarily concerned with the consecration of classical film spectatorship against digital media use, and closer analysis reveals a more nuanced articulation of cinema's increasing formal convergence with new media. While it does court negative possibilities associated with the immersive interactivity of virtual space, *The Lawnmower Man* also displays a progressive attitude to the way in which cinematic and other media experiences might function and coevolve. As Garrett Stewart has observed, '[m]ovies about the future tend to be about the future of movies', and in particular, spectacular SF cinema is often 'the fictional or fictive science of the cinema itself, the future feats it may achieve scanned in line with the technical feat that conceives them right now and before our eyes.'[42] Rather than defensively setting the social and interactive potentialities of VR against classical film spectatorship, diffusing or decrying their impact, *The Lawnmower Man* undertakes a revision of the paradigms of classical film spectatorship in light of the kinds of haptic experiences new digital media offer. Articulating these experiences through affective digital imagery, the film reflexively emphasises the adaptability of (Hollywood, SF) cinema's technical and cultural mythmaking abilities.

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[40] Ibid., 197.
[41] Ibid., 202-203.
[42] G. Stewart, 'The Videology of Science Fiction' in G. E Slusser and E. S Rabkin (eds.), *Shadows of the Magic Lamp: Fantasy and Science Fiction in Film* (Carbondale: Southern Illinois University Press, 1985), 159.

On the other side of the technophobic/technophilic divide, Chilcoat reads *The Lawnmower Man* as symptomatic of a broad *fin-de-siecle* Cartesian fervour, in which '[a] new millennium beckoned, promising a life to come for superior minds released from the chains of bodies rendered obsolete by the advances of computer technology.'[43] Despite their polar opinions on the dystopian or utopian bent of the film, Young and Chilcoat make the common assumption that *The Lawnmower Man* unproblematically aligns VR to computing. Yet VR and other digital media are figured as anything but equivalent, and VR is not set *against* cinema in any generalising sense. Rather, *The Lawnmower Man* assumes and mythologises VR as part of a distinctly cinematic aesthetic and narrative imaginary, in which affect and embodiment are central to experience.

To underline this point, it is worth pausing to invoke a metonymy. In *Neuromancer*, a radical dichotomy is produced between two fictional technologies – 'simstim' and 'cyberspace'. These technologies, which respectively represent embodied and disembodied forms of digitised experience, are redolent of the fundamental differences between VR and the net in both in the popular imaginary and in *The Lawnmower Man*. In Gibson's novel, cyberspace is described as:

> A consensual hallucination experienced daily by billions of legitimate operators, in every nation, by children being taught mathematical concepts… A graphic representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data. Like city lights, receding…[44]

Cyberspace is data, visualisation and cerebral hallucination; an abstraction of the mind from its physical, spatial and embodied basis; a dislocation from the 'constraints' of human embodiment. Conversely, simstim is predicated upon sensory intensification through re-embodiment, or a kind of *doubled* embodiment. The technology intensifies sensory input to such an extent that protagonist Case, a cyberspace junkie, finds it repugnant.

> Cowboys didn't get into simstim, he thought, because it was basically a meat toy. He knew that the trodes he used and the little plastic tiara dangling from a simstim deck were basically the same, and that the cyberspace matrix was basically a drastic simplification of the human sensorium, at least in terms of presentation, but the simstim itself struck him as a gratuitous multiplication of flesh input.[45]

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[43] 'Brain Sex, Cyberpunk Cinema, Feminism, and the Dis/Location of Heterosexuality', 156.
[44] *Neuromancer*, 67.
[45] Ibid., 71.

Simstim's function to record and replay the embodied experiences of others, and thus to *multiply* sensory stimulus, starkly contrasts with cyberspace's proffered transcendence of the 'meat'. As a popular entertainment in *Neuromancer*'s narrative world, simstim is associated with base sensations and mass desires, much like the 'feelies' in Aldous Huxley's *Brave New World* – and in both novels, their associations with cinema are explicit.[46] VR has also been imagined as sensually enhanced cinema in Hollywood SF itself – *Brainstorm* (Trumbull, 1983) and *Strange Days*, for instance, premise technologies through which other people's sensations can be recorded and played back as sensorially exaggerated, virtual-cinematic experiences. Both films augment popular cinema's affective audiovisuality by diegetically imagining and directly eliciting affective sensory stimulation. *The Lawnmower Man* similarly mobilises cinema's affective and narrative capabilities in order to ideally mythologise VR as a phenomenon more akin to 'simstim' than 'cyberspace', more 'cinema' than 'data', more 'flesh input' than 'consensual hallucination'.

Cognitive Estrangement and the Utopian/Dystopian Dialectic

Having established some of the ways in which *The Lawnmower Man* ambivalently responds to and participates in contemporary digital media and VR imaginaries, it is worth further exploring how the film's promotion, augmentation and discursive authoring of VR operates in specifically science-fictional ways. Suvin's cognitive estrangement theory provides a useful starting point for further analysing *The Lawnmower Man*'s engagement in techno-cultural mythmaking through its recourse to the real. In navigating this analytical avenue, it is important to progressively justify and demarcate how, and to what extent, *The Lawnmower Man* mobilises cognitively estranging elements. As a theory which has been more usually applied to a particular type of SF literature, and seldom applied to popular Hollywood cinema, my reading of the film in relation to cognitive estrangement must be framed in terms of limitations – both those of the film and of the theory itself in terms of understanding popular SF cinema.

In Suvin's Marxist approach, (literary) SF is defined by 'the presence and interaction of estrangement and cognition.'[47] Within this paradigm, cognition – in which we recognise and understand the narrative world as possible, coalesces with estrangement – in

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[46] "'Going to the Feelies this evening, Henry?" enquired the Assistant Predestinator. "I hear the new one at the Alhambra is first-rate. There's a love scene on a bearskin rug; they say it's marvelous. Every hair of the bear reproduced. The most amazing tactual effects...'" See *Brave New World*, 29.
[47] *Metamorphoses*, 4.

which the strangeness of the narrative world is brought to attention. This process constitutes 'not only a reflecting of but also on reality,'[48] producing a kind of thought experiment which engenders a critical response to the differences opened up between (social) reality and text. Drawing from Ernst Bloch,[49] Suvin posits that it is the novum – the central object or idea introduced into the narrative – which catalyses this process. The novum forms an '*imaginative framework alternative to the author's empirical environment* [original emphasis]'[50] which 'establishes the difference of the future by 'estranging' the reader from the present.'[51] In addition to producing a sense of estrangement (which after all is common to diverse genres), the novum must also be cognitive – that is 'perceived as *not impossible* within the cognitive (cosmological and anthropological) norms of the author's epoch.'[52] It is this 'cognisance'[53] which separates SF from other genres, and which works in conjunction with the estrangement effect to produce a specifically science-fictional 'realistic irreality'[54], in which the ruptures between what is, and what could be, are opened up to critical thought and ideological reflection.

It is important to note that Suvin's approach has been subject to much critique since his seminal *Metamorphoses* was first published in 1979. With a focus on literature, Suvin's theory is not so much an attempt to describe what is commonly taken to constitute SF, but a prescription of a set of conditions which, for him, constitutes 'real', or 'true' SF. As Suvin himself subsequently admits, '[n]ovum is as novum does: it does not supply justification, it demands justification. Where is the progress progressing to?'[55] Despite criticism of the theory's prescriptive limits, subsequent readings of spectacular SF cinema in relation to cognitive estrangement have often belied a similarly anti-populist perspective. After Suvin, Carl Freedman for example maintains a rigorous set of descriptive formal boundaries in his definition of SF which fails to account for those many examples – in

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[48] Ibid., 10.
[49] For a detailed account of how Suvin's conceptualisation of the novum differs from that of Bloch, see I. Csicsery-Ronay, Jr., 'Fictive Novums' in id., *The Seven Beauties of Science Fiction* (Middletown, CT: Wesleyan University Press, 2008), esp. 47-50.
[50] *Metamorphoses*, 8.
[51] S. Zepke, 'Beyond Cognitive Estrangement: The Future of Science Fiction' in *NECSUS European Journal of Media Studies*, vol. 1, no. 2 (Autumn 2012), 92.
[52] *Metamorphoses*, viii.
[53] Carl Freedman remedially adapts Suvin's concept of 'cognition' to the 'cognition effect', since Suvin's assertion that the novum must be consistent with current scientific knowledge proves untenable outside of the hardest of hard SF. For Freedman, an extra-textual standard of cognitive 'reality' is not a necessary condition for the textual *effect* of cognition in SF. See C. Freedman, *Critical Theory and Science Fiction* (Hanover, NH: Wesleyan University Press, 2000), 18-20.
[54] *Metamorphoses*, viii.
[55] D. Suvin 'Novum is as Novum Does' in K. Sayer and J. Moore (eds.), *Science Fiction, Critical Frontiers* (Basingstoke: Macmillan, 2000), 1.

both literature and film – which have been produced, consumed and received as such.[56] In particular, some approaches mobilise Suvin's theory in ways which problematically assume that special effects produce estrangement *against* (and in a way which impedes) the narrative evocation of cognition.

As popular Hollywood SF, *The Lawnmower Man* proves useful in calling to question the limitations of cognitive estrangement theory in understanding SF cinema – a form engaged largely in the production of spectacle which, I assert, is deeply connected to cinema's narrative and conceptual operations. As part of the VR subgenre, moreover, *The Lawnmower Man* is particularly poised to muddle the formal-conceptual distinctions which have characterised several dominant theoretical approaches to literary SF. Despite its well-established limitations, the logic of cognitive estrangement is useful for theorising *The Lawnmower Man* in terms of: its reflexive presuppositions about the evolutionary trajectory of VR technologies through recourse to the 'real'; its non-explicit but significant evocation of ideological critique; its corollary mobilisation of utopian and dystopian impulses; its interplay between cognition and affect; its claim to a better-than-VR representation of VR; and, finally, the coalescent role of narrative and spectacle in articulating these operations.

'Real Possibility' and the Diegetic Prototype

The Lawnmower Man's reflexive claims to the possible or the plausible play a key role in undergirding the film's authoritative 'authoring' of VR within an SF narrative. Rather than demanding conformity to a 'real possibility', Suvin's conceptualisation of ideal SF allows for tales which explore 'ideal possibility', or 'any conceptual or thinkable possibility the premises and/or consequences of which are not internally contradictory.'[57] Moreover, the totalising dominance of the novum defines SF as such. The novum must 'be hegemonic in a narration in order that we may call it an SF narration';[58] its implications must be worked through, its repercussions on the world of the fiction must be sustained and foregrounded rather than being superficially, incidentally or narrowly explored. In *The Lawnmower Man*, of course, VR constitutes the novum which is 'so central and significant that it determines the whole narrative logic – or at least the overriding narrative logic'.[59] *The Lawnmower Man* stakes a claim to the 'ideally possible' both through its narrative and spectacular

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[56] C. Freedman, 'Kubrick's "2001" and the Possibility of a Science-Fiction Cinema' in *Science Fiction Studies*, vol. 25, no. 2 (July 1998), 300-318.
[57] *Metamorphoses*, 66.
[58] Ibid., 63.
[59] Ibid., 70.

presentation. Mobilising a productive dialectic between the real and the imaginary, the possible and the counterfactual, the film's extrapolation of the future is made meaningful by its relation to the contemporary present. These processes produce critical reflection, conceptual investment in, and engagement with VR as a cultural mythology and as an embryonic real-world technology.

The reality of VR technologies at the time of *Lawnmower Man*'s release was, as previously noted, a far cry from the prodigal extrapolations of Lanier and others. As such, *The Lawnmower Man* succeeded, Kirby notes, as 'a "modern myth" that whet the public's appetite for enhanced VR and immersive entertainment technologies'[60] , and even 'became a shorthand reference that researchers used to easily convey the concept of VR in scientific and professional contexts.'[61] The connection between conceptual myth-making and spectacle is also evident in Leonard's sentiments on the film. '[W]hen I talk about myth', he states, 'I am talking about creating iconography for a new landscape. That was one of the things that I was very focused on while creating the visual style of *The Lawnmower Man*.'[62] Much like *Tron*, which adopted, adapted and prefigured the narrative and aesthetic paradigms of gaming, *The Lawnmower Man*'s cinematic substantiation of VR, and its successful production of the cognition effect allowed it to exert a strong and deliberate formative impact upon the paradigms of VR as a cultural mythology.

While Kirby's assumptions about the effectiveness of such representations are arguable, his discussion of cultural mythmaking in *The Lawnmower Man* highlights how VR not only (or primarily) functions as presentational and spectacular, but is integrated within a narrative which works to convince its audience of its viability and desirability. By allowing filmmakers and/or scientists to 'model potential futures', Kirby notes, SF cinema provides 'an ideal vehicle for establishing a technology's necessity, its viability and its benevolence within society.'[63] Key to this process is what Kirby calls the 'diegetic prototype',[64] a term which refers to the depiction and augmentation of proto-real technologies through cinema. As Kirby notes, 'the key to cinematic diegetic prototypes is that they allow scientists and film-makers to visualize *specific* methods and technologies within the social realm of the fictional world.'[65] Beyond facilitating these visions, Kirby argues that diegetic prototypes work to naturalise nascent technologies on a sociocultural level; they 'entail [a] visual and

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[60] 'Creating a Techno-Mythology for a New Age', 226.
[61] Ibid.
[62] 'The Future is Now', 48.
[63] Ibid., 66.
[64] Ibid., 41-70.
[65] Ibid., 66.

narrative rhetoric specifically framed so as to encourage audience support for the development of the technology on the screen.' Thus, both the visual presentation of the diegetic prototype and, crucially, its embeddedness within a credible narrative together function to promote emergent technologies within the social sphere.[66]

The most overt use of diegetic prototyping in *The Lawnmower Man* is Dr Angelo's VR chair. The profilmic device is not merely modelled on, but actually *is*, a contemporary piece of experimental VR apparatus – the Flogiston Chair – which Leonard borrowed to use on set. Invented by Brian Parks, and developed through the mid to late 1990s,[67] the device consists of a relaxation chair, a motion base, an attached neutral immersion display hood with image and sound production capabilities, and neutral hand posture controllers.[68] In its capacity as a prop on set, however, the 'real' Flogiston Chair's graphical, immersive and tactile capabilities remain unrepresented. Like contemporary video games, VR devices lacked the processing power to render real-time, interactive graphics to anywhere near the level of detail attainable in cinematic CGI. Sequences involving the chair ought perhaps to be marked, in the mode of today's video game advertisements, with the tiny disclaimer – 'not actual in-game footage.' The original device's immersive audiovisual capabilities are approximated, augmented and ultimately subsumed by the cinematic image. The 'real' VR apparatus becomes a mere prop – subordinated to, and functionally displaced by, CG 'movie magic' which reflexively contains VR, diegetically and actually, within the cinematic form itself.

In assuming the function of 'real world' VR, *The Lawnmower Man*'s presentation of the Flogiston Chair induces a sense of immersion for both character and spectator which extends beyond the audiovisual limitations of cinema and other screen media. Lacking the literal interactivity of the VR apparatus, the film nevertheless offers the most engaging, sensual and mass-communicated approximation of the VR experience available to contemporary audiences. This moreover engenders a conceptual awareness of the evolution of cinematic form itself: its potential for the affective production of myth through the adoption and assimilation of new technologies. As Leonard asserts, 'I was crying for a revolution. I saw an end of passive media and the beginning of interactive

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[66] Ibid., 43-44.
[67] L. Guernsey, 'What's Next; Magic-Carpet Chairs of Virtual Reality' in *The New York Times* (6/5/1999) [available at http://www.nytimes.com/1999/05/06/technology/what-s-next-magic-carpet-chairs-of-virtual-reality.html, accessed 20/4/2014].
[68] B. V. Park, 'Immersive cyberspace system', US patent no. 5695406 A (granted 9/12/1997); see *Google Patents* [available at http://www.google.co.uk/patents/US5695406, accessed 12/08/2015].

media.'[69] That cinema was Leonard's chosen medium in which to communicate this ambition testifies to its formal and commercial capacity to evoke and promote the tactility and interactivity associated with VR and other contemporary interactive media forms. Cinema is utilised here as a form of mass communication of audiovisual mythmaking, as a medium which can achieve unparalleled levels of detail and affective engagement with the digital image and, perhaps most saliently, as a narrative mode which illustrates the humanistic potential of an idealised mode of VR.

The spectacular presentation of the chair sequences produces a *sense* of cognition and estrangement which works concurrently with the film's narrative. The Flogiston Chair sequences signify a more benevolent, 'West Coast' type of VR experience within the limits of safe and constructive use, and work to familiarise the strangeness of VR experience. Conversely, the large gyroscopic VR apparatus in the military lab functions to estrange the familiar conditions of human embodiment – upending characters' embodied coordinates as they spin continuously within it. It is within this VR system, moreover, that scenes of conflict and aggression occur – from Jobe's attack on Marnie to his showdown with Angelo at the film's climax. The visual presentation of this latter type of VR experience omits the kinds of orientating cuts back to the diegetic real world, which help situate the spectator's identification with the image in the Flogiston Chair sequences. The film's dualistic figuring of both sets of VR apparatus thus resists any kind of conceptual rupture or contradiction between narrative and spectacular elements, which work concomitantly in the film's ambivalent casting of different forms of VR experience.

It is important here to emphasise that, while *The Lawnmower Man* is engaged in a process of thematising VR as a cultural imaginary, it is not to any significant degree actually prefiguring the real-world technological development of VR. While Kirby conceptualises diegetic prototypes as 'pre-product placements'[70], citing the touchscreen interfaces in *Minority Report* (Spielberg, 2002) as a prime example,[71] the kinds of VR depicted in *The Lawnmower Man* never really came to fruition – and were certainly never given to widespread use. As Caroline Bassett et al. note, 'links are often drawn between science fiction and technological innovation', and indeed the genre 'is often a resource supporting the value of science in popular culture and in the wider public sphere.'[72] Yet while SF

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[69] B. Leonard, cited in 'The Future is Now', 48.
[70] Ibid., 46.
[71] Ibid., 50.
[72] C. Bassett, E. Steinmueller and G. Voss, 'Better Made Up: the Mutual Influence of Science Fiction and Innovation' in *Nesta Working Paper Series*, no. 13/07 (2013) [available at http://www.nesta.org.uk/library/documents/bettermadeup.pdf, accessed 02/02/2016], 1.

visions of technology are scientifically, industrially, socioculturally and subculturally influenced *and* impactful in a number of ways, SF rarely innovates in a direct way. As Bassett et al. assert, *if* SF 'influences the making of science and technology this isn't because it stumbles upon scientific 'truths'… either accidentally or serendipitously, or even knowingly.'[73]

Concurrently, *The Lawnmower Man* is emblematic of how SF 'may intervene in, or constitute a part of, discourses shaping thinking on 'the future', understandings of how science and technology are made, and understandings of the social and cultural 'consequences' of technological innovation.'[74] It is engaged in shaping 'VR' not as a technological actuality, but as a cultural and cinematic imaginary – born of mediation, representation and discourse. In doing so, however, the film makes ostensibly justified claims to envisioning how VR might actually evolve. *The Lawnmower Man*'s duplicitous augmentation of the Flogiston Chair's graphical capabilities serves to produce a heightened 'VR' experience which is undergirded and enhanced by its conceptual and spectacular claims to extradiegetic truth. In terms of cognitive estrangement, something which appears to belong in the realm of the fictional is thereby naturalised by its claim to foreseeable futurity through extrapolation upon the (discursive and technological) present. Through topical allusion, *The Lawnmower Man* deploys certain (extrapolative and inaccurate) kinds of truth claims in order to reflexively exaggerate cinema's role within the real-world context of technological innovation, to disrupt the bounds between utopian and dystopian VR, and to elicit spectatorial participation in a mimetic rather than a purely diegetic sense.

Utopia, Dystopia and the Politics of Cognitive Estrangement

Having established some of the ways in which *The Lawnmower Man* mobilises its claims to the real, it is important to address the 'elephant in the room': the fact that the idealised function of cognitive estrangement is to engender ideological or political reflection. Suvin's cognitive estrangement is much indebted to Brecht's alienation effect, which elicits or provokes audience attention to a play's propensity to evoke social criticism, against the tendencies of realist theatre to produce a transparent experience and an uncritical

[73] Ibid., 11.
[74] Ibid., 1-2.

acceptance of the play's ideological project.[75] Similarly, for Suvin, the estranged perspective which SF produces, the uncanny dialectic between the alien and the familiar, the fictional and the everyday, provokes a critical recognition of the structural paradigms which underpin everyday experience, thus engendering cognition and action. Clearly, *The Lawnmower Man* is not an overtly radical or politically challenging text. However, in its topical allusion to the 'real' context of VR, and its impetus to map it within the cultural imaginary, *The Lawnmower Man*'s SF novum elicits effects of cognisance and estrangement which induce reflection upon the ethical and ideological frameworks in which VR (and other technologies) may be mobilised.

For Steven Zepke, the political dimensions of cognitive estrangement are absent in films like *The Lawnmower Man*, *The Matrix* and *Strange Days*: which he refers to as 'dystopian interface films'. Zepke posits that such films 'offer (an often formulaic) critique of virtual reality in favour of the human.'[76] They are formulaic in that, after destabilising the concept of the real they tend to advocate a return to it, and to a set of values posited as universal, such as 'the human rights of the individual and happiness'.[77] Moreover, the fact that resolution is largely predicated upon restorative protagonistic action which is situated in the realm of the extraordinary, these resolutions offer unrealistic political solutions which 'allow an expedient moral resolution to a narrative focused almost exclusively on dark delights.'[78] As such, for Zepke, VR films 'illustrate how easily critical 'reflection' can be instrumentalised within the amoral 'atrocity exhibition' that these films are really selling.'[79]

On closer reflection, however, Zepke's analysis elides many particularities of *The Lawnmower Man*'s narrative (most significantly its lack of a closed resolution, to which I will return shortly). It also misses the fact that the film's narrative conflict is predicated upon two polarised VR ideologies: representations of VR as embodied, humanistic experiences function as a counterpoint to the Shop's dubious and dystopian use of such technologies, thus undercutting the representation of VR as 'amoral atrocity' (a division which is underscored through its affective aesthetic strategy). To focus only on 'dystopian' elements moreover risks eliding the elementary fact that 'drama is conflict';[80] and that as a Hollywood SF film, basic norms dictate that a requisite level of peril be associated with

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[75] B. Brecht (J. Willet trans.), 'Short Description of a New Technique of Acting Which Produces an Alienation Effect' in J. Willet (ed., trans.), *Brecht on Theatre: The Development of an Aesthetic* (New York: Hill and Wang, 1964), 136-40.
[76] 'Beyond Cognitive Estrangement', 98.
[77] Ibid.
[78] Ibid.
[79] Ibid., 97.
[80] S. Field, *Screenplay: The Foundations of Screenwriting* (New York: Dell Publishing, 1979), 9.

whichever technological wonder forms its central focus. Yet beneath the surface, *The Lawnmower Man*'s ostensibly dystopian narrative produces reflection through its dialogic mobilisation of *utopian* possibility.

The Lawnmower Man and Utopia

One of Suvin's key innovations was to map the links between SF and utopia, a connection that has been assumed and further developed by, for example, Freedman and Fredric Jameson.[81] Suvin called utopia 'the socio-political subgenre of science fiction'.[82] In describing the operation of the novum in 'optimal SF', Suvin argues that 'the interaction of the vehicle (relations in the fictional universe) and the tenor (relations in the empirical universe), makes for the reader's parabolic freedom' – the freedom, that is, to imagine socio-political alternatives.[83] If the novum is 'consistent', it will open up to utopian possibility 'since freedom entails the possibility of something truly different coming about, the distinction between the consistent and inconsistent novum… is… not only a key to aesthetic quality but also to its ethico-political liberating potentiality.'[84] Thus in Suvin's paradigm, Tom Moylan notes, the novum must 'literally make a difference, and the determination of its quality is both an aesthetic and an ethico-political judgement that addresses the fundamental question of power-relationships as they play out in the author's time-space'.[85]

Given the centrality of the utopian within Suvin's theory, it is perhaps unsurprising that films such as *The Lawnmower Man* have been read against rather than in relation to cognitive estrangement. In a remedial broadening of Suvin's reading, however, Moylan considers how dystopias themselves open up to the kinds of reflective potential which the former chiefly attributes to utopian SF.[86] Moylan engages critically with Jameson's argument against 'the facile deployment of the opposition between Utopia and dystopia', and his assertion that 'these formal or generic concepts… seem to lend themselves to a relatively simple play of oppositions in which the enemies of Utopia can be easily sorted

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[81] See for example C. Freedman, 'Science Fiction and Utopia: A Historico-Philosophical Overview' in P. Parrinder (ed.), *Learning from Other Worlds: Estrangement, Cognition, and the Politics of Science Fiction and Utopia* (Durham: NC: Duke University Press, 2001); F. Jameson, *Archaeologies of the Future: The Desire Called Utopia and other Science Fictions* (London: Verso, 2005).
[82] *Metamorphoses*, 61.
[83] D. Suvin, *Positions and Presuppositions in Science Fiction* (Kent, OH: Kent State University Press, 1988), 70.
[84] Ibid.
[85] T. Moylan, "Look into the dark': On Dystopia and the Novum' in *Learning from Other Worlds*, 61.
[86] Ibid., 62.

out from its friends.'[87] Before elaborating on Moylan's innovation, however, it is important to briefly negotiate Jameson's original counter-proposal, which is problematic as well as productive in relation to *The Lawnmower Man*.

In overcoming the tendency to binarise the utopian and the dystopian, Jameson identifies a sliding scale – between utopia and 'anti-utopia' – which he suggests should be distinguished from dystopia. For Jameson, anti-utopia tends 'to denounce… and warn against Utopian programs', and thus acts as utopia's true obverse.[88] Dystopia, on the other hand, 'is generally a narrative, which happens to a specific subject or character, whereas the Utopian text is mostly nonnarrative and… somehow without a subject-position.'[89] In discussing the classical utopian text (in the vein of Thomas More's *Utopia*), Jameson asserts:

> [T]he utopian text does not tell a story at all; it describes a mechanism or even a kind of machine, it furnishes a blueprint rather than lingering upon the kinds of human relations that might be found in a Utopian condition or imagining the kinds of living we wish were available in some stable well-nigh permanent availability.[90]

The open insubstantiality of the utopian text, which schematises rather than straightforwardly depicts, precludes its containment in narrative within Jameson's paradigm. As Ian Buchanan asserts, '[u]topias are faced with a unique representational problem that the presence of narrative, which, because of its intrinsic demand for transformation (invariably figured by Hollywood as redemption), would only exacerbate: if we can imagine what the future might look like, then the suspicion arises that it is merely a repetition of the present'.[91] Resisting what Jameson disparagingly calls 'nostalgia for the present',[92] *The Lawnmower Man* derails the convention of protagonistic redemption. Moreover, the utopian future of VR to which the film gestures remains unrealised – a blueprint, rather than a diegetic actuality. While the utopian impulse eludes closure or containment within narrative, it is from that very narrative that the impulse is generated and given to our attention. As Raffaella Baccolini and Moylan perspicaciously observe:

> It is precisely the capacity for narrative that creates the possibility for social critique and utopian anticipation in the dystopian text. Paradoxically, dystopias reach toward what Jameson recognizes as the non-narrative quality of Utopia precisely by facilitating

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[87] F. Jameson, *The Seeds of Time* (New York: Columbia University Press, 1994), 55.
[88] *Archaeologies of the Future*, 199.
[89] *The Seeds of Time*, 55-56.
[90] Ibid., 56.
[91] I. Buchanan, *Fredric Jameson: Live Theory* (London and New York: Continuum, 2006), 115.
[92] F. Jameson, *Postmodernism, Or, The Cultural Logic of Late Capitalism* (London: Verso, 1991), 279.

> pleasurable and provocative reading experiences derived from conflicts that develop in the discrete elements of plot and character.[93]

The Lawnmower Man's 'provocative and pleasurable reading experiences' are borne by its central narrative conflict between the dystopian military structures and the utopian ideals of Dr Angelo. *The Lawnmower Man* produces a spectacular narrative polemic against the corporate and military control of technology, which facilitates Jobe's transition into a drug-fuelled *Übermensch*, and his disastrous bodily transcendence. The film engenders critical reflection through the overt suggestion that, if not for the structures which function to assume and militarise technologies, those technologies could be used to better humanity in diverse ways within the film's idealised paradigms. While Angelo's vision remains largely unrealised, evocative glimpses of VR's utopian potential emerge for example where Jobe's access to education allows him to transcend his ascribed social role, and where he and Marnie are momentarily intertwined in intersubjective virtual ecstasy. Alongside its dystopian impulse, then, *The Lawnmower Man*'s utopian impulse emerges in its counter-narrative of hope, and its critique of certain ideological and discursive systems in which it was produced.

Drawing from Jameson's approach, Moylan opens up 'an examination of the dystopian text, which is not to be read as an inversion of utopia nor to be conflated with anti-utopia.'[94] In accessing the utopian impulses at the heart of dystopian SF texts, he theorises a distinction between 'dystopia' and 'pseudo-dystopia'.[95] Drawing from Bloch, he asserts that the former is characterised by a 'militant pessimism' (which engenders critical reflection), while the latter is characterised by a 'resigned pessimism' (which does not).[96] Citing Suvin at length, he asserts:

> The potential of a dystopian text… rests in the capacity of its novum to 'reconcile the principle of hope and the principle of reality' by resisting mythological or ideological closure and opening towards a 'more mature polyphony envisaging different possibilities for different agents and circumstances, and thus leaving formal closure cognitively open-ended, regardless of whether at the end of the novel the positive values be victorious or defeated.'[97]

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[93] R. Baccolini and T. Moylan, 'Introduction. Dystopia and Histories' in id. (eds.), *Dark Horizons: Science Fiction and the Dystopian Imagination* (London: Routledge, 2003), 6.
[94] "Look into the dark", 63.
[95] Ibid., 65.
[96] Ibid.
[97] Ibid., 65, citing *Positions and Presuppositions in Science Fiction*, 83.

Moylan aligns the 'true' dystopian text with utopia itself, in its challenge to the ideological and epistemological status quo and its cognitive open-endedness. Concurrently, *The Lawnmower Man*'s mobilisation of VR suspends decisive resolution since the conflict between VR ideologies ends in an open-ended scenario in which neither the corporate-military establishment nor Dr Angelo ultimately prevail. At the film's end, Jobe escapes into a state of disembodied, cybernetic omnipotence. While this ending is unmistakably dystopian, then, its upshot remains open to speculation, and open to the consideration of alternate possibilities.

Drawing from the work of Krishnan Kumar,[98] Ruth Levitas notes that 'the optimism of utopia and the pessimism of dystopia represent opposite sides of the same coin – the hope of what the future could be at its best, the fear of what it may be at worst.'[99] Despite the tendency for overarching ideological conservatism, it is well within the remit of popular Hollywood SF to invoke cognitive engagement with utopian possibility as well as dystopian forewarning. Istvan Csicsery-Ronay, Jr. invokes Bloch's argument that 'all manifestations of culture, even artistically worthless escapist formulas, include some utopian aspect, if only because they deny conditions as they are and activate wishes to make life manageable and pleasurable.' In SF, he asserts, '[t]his combination of critical denial and wish-fulfilment is particularly active… since it is concerned with the wishing into being of imaginary worlds constructed on ostensibly rational principles.'[100] *The Lawnmower Man* attests to how the ostensibly conventional nature of popular narrative, if left critically unexamined, risks becoming a smokescreen – obscuring the ways in which even special effects-driven Hollywood blockbusters variously reveal and engage with the conditions of contemporary technocultural discourse and reality through both narrative and spectacular means. Moreover, a focus on the commerciality of such films, and their marketing as special effects showcases need not preclude more critical conceptual suggestions at work beneath the narrative surface. Exemplifying this tendency, Robert Silverberg asserts that 'science-fiction films require special effects, special effects are costly, costly films need to pull in big audiences in order to break even, and big audiences are snared only by reliance on familiar plot mechanisms.'[101] However, such a perspective disavows the internal

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[98] Specifically K. Kumar's *Utopia and Anti-Utopia in Modern Times* (Oxford: Blackwell, 1987).
[99] R. Levitas, *The Concept of Utopia* (Hemel Hempstead: Philip Allan, 1990), 139.
[100] I. Csicsery-Ronay, Jr., 'Marxist theory and science fiction' in E. James and F. Mendlesohn (eds.), *The Cambridge Companion to Science Fiction* (Cambridge: Cambridge University Press, 2003), 119.
[101] Silverberg, R., 'The Way the Future Looks: *THX 1138* and *Blade Runner*' in L. Anders (ed.), *Projections: Science-Fiction in Literature and Film* (Austin: MonkeyBrain Books, 2004), 175.

particularities of popular cinematic texts, and their specific, evocative allusions to future possibility through suggestive criticisms of the present.

Cognitive Estrangement and the Politics of Taste

The critical tendency to dismiss popular Hollywood SF *narrative* is mirrored in the (often related) dismissal or denigration of cinematic special effects, which betrays a similar resistance to the popular and the affective. Freedman, for example, echoes Zepke's encompassing reduction of 'dystopian interface' films to 'atrocity exhibition', when he asserts that Hollywood SF films such as *Star Wars* (Lucas, 1997) work only to estrange, and not to produce the cognition effect; that is, they do not call upon or actuate their audience's critical faculties, and certainly not to the end of ideological critique. In particular, Freedman considers cinematic SF a form 'structured on an immense and perhaps disabling contradiction' between 'anti-conceptual' special effects and the cognitive estrangement effect.[102] For Freedman, cinema inherently situates its viewer in a sublimated relation, as 'a passive, atomized spectator in a darkened room', who is 'forced to consume the proffered aesthetic experience strictly according to the temporality defined by the filmmaker'.[103] Due to their special propensity for spectacle, he asserts, SF films almost always induce passivity, overwhelming the viewer in accordance with cinema's 'authoritarian aspect',[104] suppressing critical reflection and resulting in a 'conservative acceptance of the status quo.'[105] Even as Freedman mobilises Suvin's theory, then, he reads SF *cinema* against Suvin and Jameson's accounts of what SF fundamentally functions to do – to engender reflexive critique through productive estrangement. Citing Kubrick's *2001: A Space Odyssey* (1968) as a rare example of a film which, for him, qualifies as truly science-fictional, Freedman posits that its success in this regard is based on its transcendence of conventional narrative foci – 'plot, character, and setting' – in favour of a '*radically* visual dimension [original emphasis]'.[106] For Freedman, *2001* is an exception which proves the rule, and serves to suggest that SF cinema as a whole may be 'intrinsically impossible'[107].

Beyond the problematic idea that spectators are 'forced' into a particular relation with popular cinema, the idea that SF spectacle engenders pure 'estrangement' at the

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[102] 'Kubrick's "2001"', 312.
[103] Ibid., 306.
[104] Ibid.
[105] Ibid., 312.
[106] Ibid., 304.
[107] Ibid., 315.

expense of the conceptual or cognitive produces a prescriptive and generalising view of cinematic audiovisuality. Following Geoff King, Mark Bould notes that 'denunciations of the apparent ascendancy of spectacle at the expense of narrative and character psychology normalise a specific 'politics of taste'… which neglects the utopian feelings of abundance, energy, intensity, transparency and community that the social and aesthetic experience of mass-produced spectacular entertainment can generate'.[108] Even where 'spectacle massively outweighs any cognitive-conceptual elements', Bould points out, 'viewers might as easily be moved, inspired or bored, have their thoughts provoked or their sensibilities offended, as be overwhelmed.'[109] Freedman's ultimate differentiation of (narrative) critical cognition and spectacle – which he believes to enact a kind of authoritarian pacification – bespeaks a resistance to the affective dimension of spectacle which is born of specific discursive traditions. As Bould notes, 'the Marxist and film theory traditions upon which Freedman draws are profoundly anxious about affect and embodiment, and tend to focus on the apparatuses of (economic, political, social or cinematic) power at the expense of individual and collective subjects positioned by and responding to them'.[110] In countering such tendencies, Bould notes that 'any serious discussion of SF film must allow for a greater complexity that reflects the synaesthesia of experience… rather than falling back unreflexively into thinking based on arbitrary analytical distinctions (for example, cognition vs. affect, narrative vs. spectacle)'.[111] In taking up this imperative it is worth elaborating, by way of conclusion, the extent to which *The Lawnmower Man*'s moral, conceptual and cognitive dimensions are articulated significantly through the film's affective visual effects; and moreover, as is characteristic of the VR subgenre, how embodied address is undertaken as a conceptual rather than purely spectacular project.

Cognitive Estrangement and the Ontology of the Image

The Lawnmower Man's VR novum extends beyond the diegetic to call upon and render strange the spectator's experience of embodied being and cinematic affect. The film's digital special effects perform particularly important narrative and spectacular, affective and conceptual functions within its cognitively estranging dialectic address. In particular, its use of digital imagery bears comparison to more conventional contemporary mobilisations of

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[108] M. Bould, *Science Fiction* (London: Routledge, 2012), 68-69.
[109] Ibid., 8.
[110] Ibid., 7-8.
[111] M. Bould, 'Film' in R. Latham (ed.), *The Oxford Handbook of Science Fiction* (Oxford: Oxford University Press, 2014), 164.

Hollywood CGI. Films such as *The Abyss* (Cameron, 1989), *Terminator 2: Judgement Day* (Cameron, 1991) and *Jurassic Park* (Spielberg, 1993) overwhelmingly tend to employ digital imagery in a way which is more-or-less continuous with photorealistic diegetic environments – in stark contrast to *The Lawnmower Man*'s drastically and reflexively abstract use of digital imagery. *Jurassic Park*, for example, is notable for its naturalistic presentation of painstakingly rendered brachiosauruses which blend convincingly into the photorealistic landscape, and when *Terminator 2*'s T-1000 melts into a liquid alloy, he morphs with similar seamlessness into the profilmic environment. Also striking is the contrast in shot mobility between these films' digital-analogue composites and *The Lawnmower Man*'s fully CG environments. The cinematography in the former sequences is governed by a distanced, pictorial aesthetic which operates to naturalise such images within recognisably photorealistic space. Conversely, the physically unbounded virtual cinematography which characterises *The Lawnmower Man*'s VR sequences exceeds the co-ordinates of ordinary embodied being and the physical camera, producing a sense of perceptual dissonance which further estranges the already novel CG image.

However, this overtly unnaturalistic aesthetic also operates cognitively, to familiarise VR within a cinematic audiovisual and narrative regime. Unlike *Terminator 2* and *Jurassic Park*, *The Lawnmower Man* rejects the impetus to participate in digital cinema's oft-assumed teleological propulsion towards photorealism.[112] In observing this tendency, Buckland counters the separation of spectacle from narrative based on the assertion that digital imagery continues to operate in the production of realism and illusionism, which in turn operate to increase narrative credibility.[113] And yet while *The Lawnmower Man*'s abstract VR sequences are quite palpably 'unreal', they are nevertheless perceptually and narratively coherent. Despite the availability of more realistic rendering techniques such as texture mapping in the '80s and '90s, King and Krzywinska note that *The Lawnmower Man*'s bright, artificial aesthetic is more appropriate 'both as a 'realistic' approximation of the world inside a computer and as a source of flashy imagery sold for its appeal as a special effect.'[114] *The Lawnmower Man* is able to coherently rupture and alienate the cinematic paradigms of photorealism due in large part to the fact that its narrative is directly *about* VR. *The Lawnmower Man*'s abstract vision of virtual space is acceptable based on its justification by,

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[112] Rodowick for example notes that '[s]ince the 1980s, if not before, technological and creative innovations in digital image synthesis have been driven by a single, though somewhat paradoxical goal: the achievement of "'photographic' realism"'. See *The Virtual Life of Film*, 101.
[113] 'Between science fact and science fiction', 187.
[114] G. King and K. Krzywinska, *Science Fiction Cinema: From Outerspace to Cyberspace* (London: Wallflower Press, 2000), 67-68.

and containment within, the film's self-defined verisimilitude, which is dependent upon both science-fictional truth claims and the cinema's own formal claim to represent. Based on its claim to the 'not impossible', the film works to authoritatively author a diegetic encounter with digital images, reflexively underscoring cinema's tendency to variously appropriate, celebrate and contain the novel experiential modalities offered by new technologies.

The Lawnmower Man's emphasis on containing or delimiting digital experience becomes strikingly evident at the film's climax, which moreover exemplifies its overlapping mobilisations of the narrative and the spectacular, the conceptual and the affective. In a hubristic killing spree, Jobe sets fire to his abusive guardian, Father McKeen, enveloping his body in digitally composited flames which jar – in shape, motion and luminosity – with the dark, photorealistic church environment around him. Jobe's sudden development of telekinetic powers, which hyperbolically exceeds the bounds of rational possibility, and the irruption of the VR world into diegetic reality constitute a reflexive breakdown of the film's own established narrative and cognitive logic. In making and then breaking the logic of its own authored and authoritative world, the scene testifies to how, as Mike Michael argues, SF is by its very nature simultaneously 'serious and ludicrous, trustworthy and incredible, scientific and fictional',[115] and may thereby engage in the production of meanings which a prescriptive application of cognitive estrangement theory risks failing to grapple with at all. The shattering of cognition in favour of unfettered estrangement here reflexively stages the potentially subversive impact of digital media and imagery on cinematic visual and narrative paradigms. The spectacular, anti-naturalistic irruption of the digital image produces a sense of alienating perceptual dissonance which parallels and undergirds the moment of narrative horror and cognitive disruption, bringing into relief the film's reflexive anxiety about the fissured boundaries between real and virtual, digital and cinematic space. Thus while *The Lawnmower Man* hints at the positive potential of re-embodiment within the virtual world, the inverse situation – the encroachment of virtual elements into the physical – is cast as a dystopian intrusion of digital being into unmediated reality.[116] Ultimately, the scene undergirds the film's moral position, which promotes the careful delineation of VR and the digital image from the 'real' (as represented by self-sufficiently analogue images) and its containment within a cinematic narrative framework.

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[115] M. Michael, 'Comprehension, Apprehension, Prehension: Heterogeneity and the Public Understanding of Science' in *Science, Technology and Human Values*, vol. 27, no. 2 (2002), 372.

[116] Leonard was to employ a similar scenario in his 1995 film *Virtuosity*, in which a dangerous, simulated criminal mastermind escapes from his virtual prison to wreak havoc in the real world.

The Lawnmower Man thus extends cinema's representational function beyond the profilmic in order to participate convincingly and opportunely in a broader process of contemporary digital mythmaking, engaging with the future possibilities associated with digital imagery and media engagements. For Pierson, early 1990s SF film effects are 'very much directed towards establishing a spectatorial relation to its computer-generated special effects that is wondering, and even contemplative… [thus] the presentation of key computer-generated images produces a distinct break in the action.'[117] Yet as I have argued, the extradiegetic, contemplative and cognisant relations produced by the film's abstract digital space are not disruptive of narrative action, but rather commonly operate in its extrapolative figuring of digitally mediated experience. As Wood notes, we make sense of the digital image in cinema from a network of contextual knowledge brought about by engagements with a range of imagery, aesthetics and concepts. She notes that '[a]s the network of knowledge a viewer draws on to interpret an image expands, it begins to encompass effects not as abstract technological constructions, but as representative of narrative elements, as realities within the story world of the fiction.'[118] In its abstract yet narratively motivated employment of digital special effects, *The Lawnmower Man* carves a niche in this complex network of knowledges, authoritatively delimiting and offering up a means of experiencing what it promotes as the 'future' of digitally mediated experience through cinema.

The Lawnmower Man's production of cognition and estrangement also works to foreground and subvert the oft-assumed functions of analogue imagery. In an upending of the perceived relation by which the digital image is considered disruptive or alienating, and the analogue image is associated with transparency, *The Lawnmower Man*'s opening sequence foregrounds the potential for analogue imaging technologies themselves to defamiliarise, unsettle and reshape our embodied perceptions. In the opening shot, the camera emerges from behind a sign reading "Virtual Space Industries" to reveal the secluded lab where Angelo and his colleagues carry out their research. Inside the lab, a handheld camera drifts down the hallway at a slightly canted angle – suggesting a familiar embodied human point of view with a touch of alienating distortion. A sudden cut reveals a room lined with cages, through which the camera drifts backwards, heightening a sense that the security of ordinary, human embodiment is gradually falling away. A third shot from inside a cage tracks forwards as though peering through the bars. Now caged, the dehumanisation of the

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[117] 'CGI Effects in Hollywood Science-Fiction Cinema 1989-1995', 169.
[118] A. Wood, *Digital Encounters* (London: Routledge, 2007), 43.

camera's perspective is complete – and it is revealed to us that the locus of our point of view has been Dr Angelo's chimpanzee. Through this shift from the somewhat-familiar to the unsettlingly alien, the film segues us into a subject-position which is reflexively piecemeal, disjunctive and unfamiliar. In narrative context, Dr Angelo's chimpanzee is the 'humanised non-human' which acts as the obverse to Jobe, the 'dehumanised human'. Even at this stage, when the VR novum has not yet been established, let alone naturalised within the diegesis, the scene establishes the film's (diegetic and extradiegetic) impetus to defamiliarise ordinary embodiment, to highlight the contingencies of all forms of technologized experience, and to produce a disjunction between human and 'inhumane' uses of technology.

The Lawnmower Man's narrative and aesthetic coalescence complicates Suvin's assertion that cognitive estrangement is (within the literary paradigm he adopts) less formal than conceptual: that '[i]t is the new idea that shocks us into perception, rather than the new language of the poetic text'.[119] *The Lawnmower Man*'s central novum, and its narrative function, are inseparable from the formal-aesthetic devices through which it is articulated. For Rob Kitchin and James Neale, Suvin's estrangement effect 'is particularly obvious in SF cinema, as special effects simultaneously present the real as unreal and draw attention to its nature as fiction'.[120] While *The Lawnmower Man* testifies to the potential for spectacle to produce a self-conscious questioning of mimesis, this project is also taken up through narrative. It is thus problematic to downplay the conceptual and cognitive significance of both special effects *and* narration in cinematic SF. Neale for example locates the 'science-fictionality' of SF cinema predominantly at the level of spectacle; asserting that their narratives function 'largely to motivate the production of special effects'[121], and that their sophisticated audiovisual technologies are 'introduced and displayed as and through' the genre.[122] This assumes a problematic hierarchy which precludes a more nuanced understanding of the dialectic operations through which cognition and estrangement may operate as *continuous* with narrative – without necessarily disrupting or contradicting it. In challenging such approaches, I have argued that *The Lawnmower Man* reflexively mobilises spectacle and narrative in tightly coalescent ways, so that the distinctions between the affective and the conceptual, the digital and the cinematic, are blurred.

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[119] *Metamorphoses*, 47.
[120] J. Kneale and R. Kitchin, 'Introduction' in id. (eds.), *Lost in Space: Geographies of Science Fiction* (London: Continuum, 2002), 8.
[121] S. Neale, *Genre* (London: British Film Institute, 1980), 31.
[122] Ibid., 34.

Conclusion

By exploring the relationship between bodily immersive VR as a real-life industrial product and its representation in cinematic SF, this chapter has sought to highlight how *The Lawnmower Man*'s reflexive and formally specific shaping of VR as cultural mythology operates through appeals to 'real-world' authority and prescience. Through this avenue, I have called to question a range of problematic tendencies which have shaped certain approaches to *The Lawnmower Man* and other SF cinema: in particular, prevalent and often mutually sustaining tendencies to polarise narrative and spectacle, dystopian and utopian impulses. In doing so, I have highlighted how *The Lawnmower Man*'s diegetic and extradiegetic, conceptual and affective operations tightly and coherently coalesce. Moreover, I have argued that *The Lawnmower Man*'s moments of spectacular affect do not operate as anti-narrative, but rather produce a particular kind of narration endemic to SF – in which the common-sense is denaturalised, and mediation itself is exposed and interrogated. By extension, my analysis suggests that dichotomous or prescriptive approaches to cinema's affective and conceptual, utopian and dystopian operations risk eliding the complex significance of a range of cinematic SF representations.

My analysis has consisted in a sustained and central focus on the body and affect, which I have argued are intrinsic to the film's continuous narrative and spectacular, utopian and dystopian operations. Through its strong alignment with the ideological impetus of real-world VR pioneers, the film works to idealise VR, cinema, and by extension other media, as fundamentally corporeal experiences. *The Lawnmower Man* thus exemplifies how, as Lauren Rabinowitz, observes, '[c]inema attempts to effect and promise embodiment as a prophylactic against a world of continuing disembodiment,'[123] promoting the embodied contingency of all mediated experience while warning against potentially dehumanising technologies which would promise bodily transcendence. Moreover, *The Lawnmower Man* authoritatively emphasises cinema's ability to apprehend, shape and outperform the modalities of other (real and imagined) media forms. The film's promotion of VR as a vehicle for perceptual expansion is deeply interconnected with its reflexive remediation of the paradigms of cinematic address, in which the film emphasises its haptic potential through the diegetic representation of a more tactile experience than that which it literally constitutes. In sum, *The Lawnmower Man* deeply resonates with Marks' assertion that

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[123] L. Rabinowitz and A. Geil (eds.), *Memory Bytes: History, Technology, and Digital Culture* (Durham, NC: Duke University Press, 2004), 104.

cinematic experience is 'grasped not solely by an intellectual act but by the complex perception of the body as a whole.'[124]

[124] *The Skin of the* Film, 145.

Chapter Three

Binary, Coded: On the Absence of the Digital in *Strange Days*

> "This isn't like TV only better. This is life. It's a piece of somebody's life. Pure and uncut, straight from the cerebral cortex. You're there. You're doing it, seeing it, hearing it… feeling it." – Lenny

Kathryn Bigelow's *Strange Days* (1995) imagines a near-future in which it is possible to record, verbatim, fully embodied experiences. The Superconducting Quantum Interference Device (SQUID) is a magneto-optical recording device capable of capturing its wearer's perceptual experience through a headset. The resulting recordings (known as 'clips'), are stored digitally on Minidisc and can be played back amongst users via the headset. Set in downtown LA, *Strange Days* follows Lenny Nero – a black-market purveyor of these ersatz experiences – as he becomes embroiled in a murder mystery which is itself connected to the slaying of a high-profile African American rapper and political activist, Jeriko One. Along with his friend Mace, Lenny becomes embroiled in a web of murder and police corruption, while fighting his urge to retreat into his own, SQUID-recorded past.

Strange Days has been widely discussed both as a film about cinema, and as a film about mediation more generally.[1] Lauren Rascaroli, for instance, considers that 'cinema itself is, more than television, the constant point of reference of this film.'[2] Rascaroli explores the film's recurring visual motif of windows, mirrors, frames and screens, and the shattering of these – evoked by the film's strategic use of POV in reducing the distance between viewer and viewed.[3] But while vision is indeed a key theme of the film – references to the eye, to seeing and to witnessing abound – *Strange Days* is also crucially concerned with embodied perception in relation to the act of seeing: the way in which technologies impact upon not only the visual, but the perceptual apprehension of the contemporary world. To this end, *Strange Days* constructs a world awash with mass communications media of all kinds – radio, television reportage, cell phones, pagers – a world of hypermediation and sensory overload.

Set in the run up to the millennium, against a backdrop of impending disaster and looming all-out race war, *Strange Days* overtly plays on a *fin-de-siecle* cultural anxiety

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[1] See for example J. D. Bolter and R. Grusin, 'The Double Logic of Strange Days' in *Remediation*, 311-358.
[2] L. Rascaroli, 'Strange Visions: Kathryn Bigelow's Metafiction' in *Enculturation*, vol. 2, no. 1 (Autumn 1998) [available at http://www.enculturation.net/2_1/rascaroli.html, accessed 17/12/2014], no pagination.
[3] Ibid.

surrounding multiplying forms of mediation. As Mark Berrettini notes, *Strange Days* is shot through with 'visual "rumors" of war, unrest, and impending doom', which 'circulate throughout most of the film within various representations from visual-media technologies – television, the film camera's depiction of the diegetic world, and the film's recurring special effect representation' of SQUID.[4] As this critical summary suggests, the digital is barely referenced – not only insofar as the film uses analogue rather than digital special effects, but in the lack of diegetic representations of digital media. In fact, it is even arguable whether SQUID should be considered a digital or an optical medium. Steven Shaviro states that Bigelow 'materialises memory itself as a technology of electronic replication',[5] while Catherine Zimmer considers SQUID a non-digital technology, opining that *Strange Days* signifies a 'move from a more common science-fiction focus on digital technologies in this era to the SQUID, a magnetic technology.'[6] These conflicting interpretations – borne by the ontological ambiguity of the device – reflect the ambiguity with which *Strange Days* deals with the digital more generally.

Strange Days is set in the year 1999 – a mere four years from its release, which makes its lack of specific engagement with the digital all the more curious. We do not see a single computer, for instance, in spite of its release amidst the domestic proliferation of the internet. For Zimmer, 'it is striking that the possibility of computer systems breakdown with the date switch from 1999 to 2000 is not more central to the film's envisioning of a "Y2K" disaster.'[7] This absence is perhaps not so curious given that *Strange Days* predated much of the media hype surrounding a 'millennium bug', and yet its preoccupation with virtual experiences, simulation and reality is many ways evocative of the kinds of contemporary concerns which underpinned Y2K mythology. [8] As William Palmer states, Y2K was 'a metaphor for all the doubts about the unstable virtual world… a metaphor for an age of metaphor, an age that had taken reality and had spun it into realities, simulacra and virtuality,'[9] and *Strange Days* is deeply resonant with, and allusive of, the very same

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[4] M. Berrettini, 'Can 'We All' Get Along? Social Difference, The Future, and *Strange Days*' in *Camera Obscura*, vol. 17, no. 50 (2002), 159.
[5] S. Shaviro, 'Straight From the Cerebral Cortex: Vision and Affect in Strange Days' in D. Jermyn and S, Redmond (eds.), *The Cinema of Kathryn Bigelow: Hollywood Transgressor*, (London: Wallflower Press, 2003), 173.
[6] C. Zimmer, 'Surveillance and Social Memory: *Strange Days* Indeed' in *Discourse*, vol. 32, no. 3 (2010), 304. In fact, SQUID is an extrapolation on an existing technology which shares its name: a device 'used to sense extremely small changes in very weak magnetic fields' and even 'to detect the subtle changes in the electromagnetic field of the human body.' See Ibid., 309.
[7] Ibid., 304.
[8] For a thorough historical account of Y2K as a cultural discourse, see K. Best, 'Revisiting the Y2K Bug: Language Wars over Networking the Global Order' in *Television and New Media*, vol. 4, no. 3 (August 2003), 297-319.
[9] W. J. Palmer, *Films of the Nineties: The Decade of Spin* (New York: Palgrave Macmillan, 2009), 222.

contemporary concerns which Y2K subsequently represented. *Strange Days*' preoccupation with the countdown to the new millennium provides not only a sensationalistic backdrop and limited time-frame for the action, but contains the implicit acknowledgement that the ontological instability of the future is, in fact, part of the present.

In this chapter, I intend to explore this apparent lacuna, which I argue is central to the film's specific response to an increasingly digitally mediated present. In terms of form, content and narrative function, *Strange Days*' SQUID clips evoke variously serious and sensationalistic, real and imagined issues surrounding emergent digital engagements – particularly in terms of their imagined impacts on embodiment, identity, reality and temporality. The peculiarity of imagining a VR experience which is direct, immutable and dependent upon fixed material referents is one which is not continued in later VR films such as *The Matrix* and *The Thirteenth Floor*,[10] which also more directly reference the 'digitality' of their VR technologies. Despite the film's use of fully analogue visual effects, and its figuration of VR as indexically recorded experience, the elusive digital nevertheless manifests itself in indirect yet provocative ways. Moreover, *Strange Days*' diegetic technology variously evokes the representational and experiential modalities of both digital media and cinema itself, reflecting a process of negotiation, through allusion and comparison, between old and new media forms. My analysis coheres around how the film resonates with contemporary discourses around the positive and negative potentialities of digital mediation, and its ontological, epistemological and ideological functions.

Like many other VR films, *Strange Days* presents its diegetic technology in ways which privilege particular uses while problematizing others. In what follows, I focus on the film's SQUID sequences in terms of their aesthetic and narrative functions within the context of the film as a whole, interrogating how SQUID variously represents and complicates new modalities offered by digitally mediated encounters as well as the existing modalities of narrative cinema. I begin by analysing *Strange Days* as a film which is about more than new modalities of seeing. I argue that that the film's central concerns are refracted through its sustained preoccupation with the role of embodiment in mediation, and the ways in which media technologies shape our phenomenological relations to the world and/as image. I demonstrate how *Strange Days*' fundamental concern with the primacy of embodiment is articulated particularly strongly through its ambivalent figuring of its diegetic technology; how different SQUID sequences are valued within the film's

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[10] *The Thirteenth Floor* imagines a fully interactive simulated world modelled on LA in the 1930s, in which users are 'uploaded' into the program while their original bodies remain in stasis.

moral-ideological and narrative framework in terms of their propensity to produce affect either in isolation from, or in conjunction with, emotion and embodied action. Having established this, I turn to how *Strange Days* variously approximates, appropriates and problematises real and imagined experiential modes offered by digital technologies and cinema itself – from the promise of immediacy and interaction, to the pretence of the 'real', to the subjective manipulation of time. Ultimately, this analysis also calls to question *why* the digital is so elusive here, and what that suggests about *Strange Days* as a particular reaction to an increasingly digitally mediated present.

Embodiment, Affect and Emotion

Strange Days' ambivalent attitude to its diegetic technology is articulated through the respective diegetic and spectatorial impacts of different types of SQUID experience, which square with their relative value within the film's narrative economy. While some selected clips contain perceptual and cerebral information which – while distressing – is socially and narratively useful, others are reflexively disconnected from narrative, embodied and social contexts, proffering simply pure, transcendental pleasure. The film's ambivalence about its diegetic technology centres on this split – between clips which make impossible promises of immediacy, interactivity, temporal and embodied transcendence, and those which function to assist embodied subjects in the here and now. The presentation of SQUID sequences thus performs a central role in the film's narrative and aesthetic project: to imagine, explore and problematise 'virtual' experience, as well as the impact of the digital – as mythology and media technology – on our moral and perceptual relations to the world.

The SQUID sequences themselves, which perhaps constitute the most innovative and remarkable technical feature of *Strange Days*, are comprised of unusually mobile, extended POV shots achieved through the development of an experimental wearable camera.[11] The resulting aesthetic can ostensibly be seen as the continuation of a monstrous POV trope in the horror genre (*Peeping Tom* (Powell, 1960), *Black Christmas* (Clark, 1974), *Halloween* (Carpenter, 1979)), or compared to the experimental use of sustained subjective POV in *Lady in the Lake* (Montgomery, 1947).[12] But the use of POV in *Strange Days* is highly idiosyncratic: not only does it draw the spectator's attention to mediation, it produces a

[11] The development and implementation of this device is discussed at length in an audio commentary by Bigelow; see 'Director's Commentary' on *Strange Days* (DVD 2001).
[12] For an in-depth phenomenological analysis of *Lady in the Lake*'s use of POV, see V. Sobchack, *The Address of The Eye*, 230-248.

parallel sense of reflexivity in characters who share in the uncanny experience of a different embodied position. The POV aligns us with the perceptual positions both of the character whose experience has been recorded and the character playing it back. This multiplication of subject positions reflexively draws attention to the continuities and disjunctions between differently embodied subjects in the world, even as they themselves are subject to the same, or similar, processes of mediation. SQUID sequences thus situate the spectator in a position of paradoxically alien intimacy with the film's characters and events. Characters' own experiences are similarly figured as somewhat disjunctive – at times, ambient sounds cross over between the recorder and user's environments, and when Mace uses SQUID for the first time, Lenny tells her, "if you open your eyes you'll see double."

Underlining the inescapability of situated embodiment, *Strange Days* resonates with Merleau-Pontyan phenomenology's focus on the primacy of the body in perception. Merleau-Ponty conceives of the body as central to worldly experience, maintaining that 'the body is our general medium for having a world.'[13] While in many other VR films such as *Tron*, *The Lawnmower Man* and *The Matrix* the user's phenomenal field is fully subsumed into VR, characters in *Strange Days* may not wholly transcend the immediate *experience* of their material body. Reflexively paralleling our own worldly experience of media technologies, including cinematic spectatorship, SQUID reminds us of the contingency of any mediated experience upon our own finite embodied position. At the same time, by multiplying the planes of experience, the film diegetically literalises the technological extension of human perception through multiple, simultaneous forms of mediation which are coextensive with, and yet always distinct from, our primary embodied situation.

SQUID clips are moreover evocative of Merleau-Ponty's assertion that embodiment as a condition stands anonymously and independently of the personal.

> My personal existence must be the resumption of a prepersonal tradition. There is, therefore, another subject beneath me, for whom a world exists before I am here, and who marks out my place in it. This captive or natural spirit is my body.[14]

Sensation, for Merleau-Ponty, is anonymous, depersonalised and incomplete – it is distinct from the self, despite being instrumental in its formation. It is, he states, 'by reason of my [embodied] position [that] I have access to and an opening upon a system of beings… in virtue of a kind of primordial contract and through a gift of nature, with no effort made on

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[13] *Phenomenology of Perception*, 146.
[14] Ibid., 254.

my part.'[15] Thus Merleau-Ponty acknowledges an element of passivity and 'pregiven-ness' inherent to embodied existence, which prefigures our relations to the world and its other subjects. But although primary, prepersonal affect forms the *a priori* basis for being, it does not operate in isolation from acts of subjective processing, conscious intuition and worldly social action within the paradigms enabled by the phenomenal field and our situation within it. While it is our fundamental condition of embodiment that allows us to grasp phenomena, our physiological responses subsequently reverberate at the levels of language and meaning. For Merleau-Ponty, the body is 'that strange object which uses its own parts as a general system of symbols for the world, and through which we can consequently 'be at home in' the world, 'understand' it and find significance in it'.[16] The Merleau-Pontyan body, then, is not simply a physiological structure, but a symbolic structure. The moral-narrative value of *Strange Days*' SQUID sequences consists in the extent to which characters' primal embodied engagement with them transmutes into symbolic meaning and action.

Strange Days establishes this alterity from the outset. The film opens with an extreme close-up of an eye is accompanied by a disembodied voice – "Ready?" – to which a second replies, "Yeah, boot it." A burst of bright white static and a high pitched whine on the soundtrack stabilise into a POV shot in the back-seat of a car, accompanied by the sound of street noises and heavy breathing. This audiovisual transition cues an immediate recognition that this is a diegetically mediated experience – that we appear to be sharing this embodied, subjective, and 'other' position with a character as-yet unseen and unnamed. Through an impressively continuous, illusory 'single take', we witness a high octane robbery and chase sequence, throughout which we assume the embodied point of view of a character who remains unnamed and unknown – and who ultimately falls to his death.

The aesthetic presentation of this sequence is itself curiously hybrid. Free of digital visual effects, the sequence is shot on film – at night – which accentuates the grainy, analogue quality of the image. At the same time, however, the POV perspective of a character brandishing a gun, moving through corridors and climbing stairs echoes (and visually outperforms) the aesthetics of contemporary 3D first-person shooter games such as *Wolfenstein 3D* (1992), *Doom* (1993) and *Heretic* (1994). Where, in gaming, the first-person perspective produces a sense of identification with the avatar, however, its employment here has a rather more dislocating effect. As Shaviro points out, the fully POV SQUID

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[15] Ibid., 216.
[16] Ibid., 237.

sequences deny both establishing shots and reverse-shots 'that usually anchor cinematic narrative'.[17] Moreover, the opening sequence in particular is hyperbolically excised from both narrative contextualisation and character identification. Rascaroli notes that through the intensely 'embodied' perspective endemic to the SQUID clips, 'we share not only the angle, but also the modality of the characters' vision and, therefore, their feelings of fear and anxiety.'[18] In this scene, and in others, these feelings and anxieties are acutely decontextualised, so that the affective perceptual alignment with a modality of vision does not serve to engender character identification at all. He/she is so close, the intimacy the viewer has with him/her is so extreme, that all sense of embodied selfhood is lost, and the vividness of what is happening takes precedence over the question of *to whom* it is happening.[19]

Existing as pure perception, divorced from personal and social (and narrative) context, this and many other SQUID clips both produce and diegetically signify an excess of primary affect. As conceptualised by Brian Massumi, affect describes a preconscious reaction to stimulus: a 'prepersonal intensity corresponding to the passage from one experiential state of the body to another and implying an augmentation or diminution in that body's capacity to act.'[20] Fundamentally hard to grasp and to theorise, affect characterises our immediate experience *before* it is apprehended emotionally – or in relation to the personal. As Virginia E. Demos puts it:

> Affects are comprised of correlated sets of responses involving the facial muscles, the viscera, the respiratory system, the skeleton, autonomic blood flow changes, and vocalisations that act together to produce an analogue of the particular gradient or intensity of stimulation impinging on the organism.[21]

In its status as indexical perceptual recording, SQUID produces an analogue of intensity which is displaced from its embodied origin. Experienced as pure, decontextualised sensation, many SQUID sequences are further removed from the embodied recorder's lived existence than others, to the extent that the identity of the wearer-recorder is not only unknown, but narratively unimportant. There is no way for the character or the spectator

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[17] 'Straight from the Cerebral Cortex', 165.
[18] L. Rascaroli, 'Steel in the Gaze: On POV and the Discourse of Vision in Kathryn Bigelow's Cinema' in *Screen*, vol. 38, no. 3 (1997), 234.
[19] 'Straight from the Cerebral Cortex', 165.
[20] B. Massumi, 'Introduction' in G. Deleuze and F. Guattari (B. Massumi trans.), *Capitalism and Schizophrenia: A Thousand Plateaus* (Minneapolis: University of Minnesota Press, 1987), xvi.
[21] V. E. Demos, 'An Affect Revolution: Silvan Tomkins's Affect Theory' in V. E. Demos (ed.), *Exploring Affect: The Selected Writings of Silvan S. Tomkins* (New York: Cambridge University Press, 1995), 19.

to process such experiences beyond their capacity for affect, and so they remain curiously elusive to understanding and non-conducive to significant diegetic action.

Conversely, when SQUID clips are situated as the recorded experience of a particular character – and diegetically understood in relation to that character's situation – their evidential value and narrative function is unearthed. In a SQUID recording which shows the brutal rape and murder of Iris, for example, we are unaware of the identity of the killer, but murder-mystery convention tells us that this is a character whose identity will be revealed as a matter of importance. Similarly, a clip recorded from Iris' perspective which shows high profile rapper and activist Jeriko One's assassination is key to the exposure of police corruption which has blighted the diegetic world. The value of particular 'clips' within the moral and narrative economies of the film is fundamentally dependent upon whether and how the user responds cognitively and *emotionally* to the wearer-recorder's prepersonal experience.

Within Massumi's paradigm, emotion is defined as a qualified affect (or 'intensity'). Emotion is 'intensity owned and recognised': '[t]he conventional, consensual point of insertion of intensity into semantically and semiotically formed progressions, into narrativizable action-reaction circuits, into function and meaning.'[22] Within its moral framework, *Strange Days* idealises a coextensive relation between the affective and the prepersonal, between 'given' experience and intentional, emotional and 'owned' perceptive response. This is perhaps most vividly expressed when Mace experiences the clip of Jeriko's death. The clip, recorded from the embodied position of Iris, allows Mace to experience first-hand her visceral terror; the tactile and the haptic rhythms of Iris' body as she is pursued for what seems like miles by police. After having experienced all of this, Mace is overwhelmed by the impetus to translate this mediated, depersonalised experience into material, socioculturally curative action. For Mace, Iris' experience is neither decontextualised nor wholly vicarious – as a politically engaged black woman, the content of the clip is deeply and viscerally poignant, and her bearing witness to this crime is deeply connected to her own experience of the racially divided society around her. Far from the hyperbolically decontextualised opening sequence, here Iris' prepersonal affect becomes intertwined with Mace's own, producing an empathetic recognition of the contingency of (mediated) affective experience upon the material and social conditions which produce it.

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[22] B. Massumi, 'The Autonomy of Affect' in W. Rasch and C. Wolfe (eds.), *Observing Complexity: Systems Theory and Postmodernism* (Minneapolis: University of Minnesota Press, 2000), 285.

While it is not clear whether the women have ever even met, Iris' phenomenal field is subsumed into Mace's own, and becomes directive of her own cognition and action.

We are given to identify with Mace's reconciliation of the prepersonal and the reflective, the sensory and the symbolic, through our progressively fostered understanding of her political motivations as well as her status as a SQUID outsider. As she uses SQUID for the first time, Mace is as we were at the beginning of the film; experiencing a new technology for the first time, apprehending its potential to lay bare the contingencies of experience, and attempting to meaningfully process its base affectivity. Through Mace in particular, *Strange Days* aligns us with its overarching conviction (which resonates with Merleau-Ponty's) that we belong to the world as an active part of it; a relation borne through our recognition of the continuities and discontinuities between our embodied experiences and those of others. The varied operations of affect, emotion and cognitive action are central to *Strange Days*' ambivalent perspective on the varied potentialities of (old and new) media experiences – which, the film suggests, may either emphasise or obscure the fundaments of worldly human comportment.

Immediacy, Identity Politics and the (Multimedia) 'Gaze'

The importance which *Strange Day*s places on the emotional processing and contextualisation of affect is central to the film's critical commentary on identity play and representation in mediated encounters. In particular, *Strange Days* exhibits a central and sustained preoccupation with the appropriation and depersonalisation of women's embodied experiences through SQUID. The commercial figuration of SQUID as a medium through which erotic entertainments are produced for predominantly male customers reflexively draws attention to the (implicitly male) cinematic gaze – the operation of which in Hollywood cinema has been thoroughly critiqued by feminist film critics like Mulvey.[23] One clip of a sexual encounter between two women is particularly striking in terms of how overtly it is constructed for its (male) audience despite being recorded from one participant's 'point of view'. It is particularly hard not to note the limits of her agency after Lenny's subsequent directorial feedback: "Honey you gotta move your eyes slower next time… like you're making love with your eyes." As Cynthia Baron notes, this is characteristic of Bigelow's films to allow the spectator to 'pursue voyeuristic pleasure… in

[23] L. Mulvey, 'Visual Pleasure and Narrative Cinema' in *Screen*, vol. 16, no. 3 (Autumn 1975), 6-18.

a context so discomforting that [the director] seems to be exposing the tawdriness of the [patriarchal] gaze.'[24]

Yet at the same time, *Strange Days* also mobilises classical cinematic technique in order to reflexively question the pleasurable consumption of images and their dislocation from the sociocultural realities out of which they were produced. In one scene, for example, we witness a prospective customer of Lenny's enjoying a preview clip of "an eighteen-year-old girl taking a shower". Significantly, we are not privy to the content of the clip itself, but are kept at a contemplative distance through a soberly static medium-shot of the unnamed customer in thrall to the intensity of the clip. As he moans and caresses his body, his head lolling back in ecstasy, the absence of POV alignment with the man's immediate experience makes his regression into pure, prepersonal affect appear particularly alienated, incomprehensible and gratuitous. Here, the film's employment of objective, classically cinematic distance reflexively augments the disjunction between perceiver and perceived, subject and object, so that it is laid bare to spectatorial contemplation.

Beyond its reflexive interrogation of narrative cinema's normative gaze, *Strange Days* also presents its diegetic VR technology in a way which is strikingly evocative of how digital spaces are similarly (or potentially) gendered in problematic ways. As Shaviro points out, SQUID is depicted as a sleazy entertainment which fills 'the market niche that is actually inhabited by porno films, perhaps crossed with computer games and online virtual environments.'[25] Indeed, the technology is figured as a formally hybrid pornographic form, in which features of traditional cinematic spectatorship are enfolded with existing and emergent modalities of digital engagements. *Strange Days* resonates with discourse on gender in digital media in terms of how SQUID promises the freedom to occupy new subject positions on one hand, while testifying to the endurance of gender inequalities in the ways it is commodified and consumed on the other. Contemporary and subsequent discourse on digital engagements such as video games and graphical or text-based virtual environments apprehend a similar alterity between liberatory performances of gender play on one hand, and the endurance – or even amplification – of normative gendered behaviours on the other.[26] Kate O'Riordan, for example, explores how video gaming

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[24] C. Baron 'The Cinema of Kathryn Bigelow: Hollywood Transgressor' (Review), in *Quarterly Review of Cinema and Video*, vol. 23, no. 5 (2006), 457.
[25] 'Straight from the Cerebral Cortex', 160.
[26] As Beth Kolko notes, portrayals of gender within multi-user graphical virtual realities 'often follow stereotypical versions of femininity and masculinity', due to a combination of factors such as default avatars and technological limitations as well as user choice; see B. E. Kolko, 'Representing Bodies in Virtual Space: The Rhetoric of Avatar Design' in *Information Society*, vol. 15, no. 3 (August 1999), 179. See also A. S.

'offers identifications for a plurality of subject positions, sometimes beyond gender binaries'.[27] At the same time, it is also widely acknowledged that users of contemporary text-based and graphical virtual realities are largely given to display a 'fairly rigid adherence to gender norms'.[28] Some contemporary research explores how users were even engaging in sexually violent, 'virtual' behaviours online,[29] which resonates with the SQUID representation of Iris' rape and murder.

It is striking that women themselves are never shown as consumers of the diegetic SQUID clips without force or grave necessity. Mace, for example, only makes her foray into the ultraviolent, hypersexual and hypermasculine world of SQUID when it is morally, ideologically and narratively obligatory. The figuring of technologized experience as a predominantly masculine space evokes Sherry Turkle's 1988 research into 'computational reticence' in women: a phenomenon born of a number of pervasive and interrelated factors. Turkle notes that, while computers themselves of course have no inherent gender bias, they had come to represent, for many, 'a personal and cultural symbol of what a woman is not.'[30] Iris and Mace's encounters with SQUID resonate particularly deeply with what Turkle calls 'the legacy of women's traditional socialization into relationships with technical objects', which 'for many of them [is] best summed up by the admonishment, 'Don't touch it, you'll get a shock."[31]

Strange Days draws attention to the limits of (particularly female) characters' agency within such spaces, which retain the subject-object relations and emphasis on (white) masculine power which have inscribed (pornographic and popular) film's own normative paradigms of visual pleasure. The psychosexual dimensions of SQUID, Nicola Rehling notes, point to 'the potential challenge that virtual culture offers to embodied subjectivity' through 'a white male desire to be liberated from the constraints of normative

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Bruckman, 'Gender Swapping on the Internet' in P. Ludlow (ed.), *High Noon on the Electronic Frontier: Conceptual Issues in Cyberspace* (Massachusetts: MIT Press, 1996).

[27] K. O'Riordan, 'Playing with Lara in Virtual Space' in S. R. Munt (ed.), *Technospaces: Inside the New Media* (London: Continuum, 2001), 224.

[28] C. Bassett, 'Virtually Gendered: Life in an On-Line World' in K. Gelder and S. Thornton (eds.), *The Subcultures Reader* (London: Routledge, 1997), 538.

[29] On her survey of research on gender and the internet between 1989 and 2003, Susan C. Herring notes that, in diverse online spaces, 'instances of aggression against women' are found, and that they 'tend to be of a sexual nature', see S. C. Herring, 'Gender and Power in On-line Communication' in J. Holmes and M. Meyerhoff (eds.), *The Handbook of Language and Gender* (Malden, MA: Blackwell, 2003), 211. See also J. Dibbell, 'A Rape in Cyberspace' in *The Village Voice* (21/12/1993), 36-42.

[30] S. Turkle, 'Computational Reticence: Why Women Fear the Intimate Machine' in C. Kramarae (ed.), *Technology and Women's Voices: Keeping in Touch* (New York: Routledge & Kegan Paul, 1988), 33.

[31] Ibid.

masculinity'.[32] Given that almost all willing consumers of SQUID are white men, Rehling notes, *Strange Days* suggests that only 'the white male can experience "a bit of the other," all without putting his own material body at risk from injury, infection, or social disadvantage.'[33] This sense of security is reflexively shattered, however, in a scene in which Lenny – the erstwhile purveyor of these embodied fantasies – discovers a SQUID recording of the rape and murder of Iris. Wired up to a SQUID headset, which plays a live recording of her attacker's experience, Iris is forced to partake in her own violation as she is raped and killed. As the subsequent consumer of this recording, Lenny instantaneously experiences Iris' terror and pain at the point of death, and the depraved ecstasy of her assailant at the point of orgasm. At intervals, the film cuts to Lenny as he writhes and retches, in an outward performance of the pit-of-the stomach visceral reaction engendered by his experience, and our viewing, of this intensely multimediated sexual violence. In this moment, as Cristina Lane notes, 'the rapist's pleasure cannot be extracted from the victim position.'[34] Lenny is positioned as both male and female, subject and object, perpetrator and victim: a development which injects a poignant irony into his earlier sales patter: "You want to be a girl?… See what that feels like?"

The scene evokes and hyperbolises Mulvey's scenario of 'sadistic voyeurism',[35] in which 'spectator and camera, both presumed "male," collude in an act of phallic violence toward women'.[36] Yet as the act of scopophilic violence and subjugation is both multiplied and reflected back onto itself; the rape and murder scene constitutes, in Shaviro's words, a 'sadistic objectification and commodification of the female image, with a vengeance.'[37] In its refiguring of the gaze as more than a gaze – as a holistic, embodied and, in this case, empathetic experience – the film both reflexively critiques the pleasures of narrative cinema, and exaggerates its implications to the extent that it becomes something else: a pseudo-cinematic media form which extends the negative potentialities of the cinematic gaze across vast and unregulated networks, with the unprecedented scope and intensity represented by online digital media.

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[32] N. Rehling, 'Fleshing Out Virtual Bodies: White Heterosexual Masculinity in Contemporary Cyberfantasy Cinema' in Z. Detsi-Diamanti, K. Kitsi-Mitakou, E. Yiannopolou (eds.), *The Future of Flesh: A Cultural Survey of the Body* (New York: Palgrave Macmillan, 2009),186.
[33] Ibid.
[34] C. Lane, 'The Strange Days of Kathryn Bigelow and James Cameron' in *The Cinema Of Kathryn Bigelow*, 183.
[35] 'Visual Pleasure and Narrative Cinema', 6-18.
[36] C. J. Clover, *Men, Women and Chain Saws: Gender in the Modern Horror Film* (Princeton: Princeton University Press, 1992), 177.
[37] 'Straight from the Cerebral Cortex', 168.

In her research into sexually inappropriate or patronising treatment of (ostensibly) female players in Multi-User Dungeons (MUDs), Turkle notes that while the gendered expectations underlying such behaviour can be more subtle or overlooked in real life, in online spaces these become more visible – more widely witnessed and discussed. As such, 'the MUD becomes an evocative object for a richer understanding not only of sexual harassment but of the social construction of gender.'[38] In a similar way, *Strange Days* mobilises its diegetic technology as way of centralising and exaggerating the gendered norms which underpin intersubjective engagements online. By amplifying the oppressive potential of the gaze beyond its usual or literal limits, the film very specifically alludes to the potential of digital media to reproduce the very same paradigmatic acts of sexualised oppression. As Rehling compellingly argues, *Strange Days* ultimately 'suggests that new ways of experiencing the flesh will still be traversed by existing power relations'.[39] The film insists that there can be no easy liberation through emergent technological forms in themselves, which are after all embedded in the same socio-political structures which have formed the paradigms of the cinematic gaze.

While *Strange Days* envisions a future technology in which these paradigms have been perpetuated and exaggerated, it also offers an alternative scenario – in which SQUID may be used to expose the systemic inequalities which underpin its more dubious uses. As Steve Macek observes, SQUID's eventual effect on Lenny 'seems to suggest that media images can also be bearers of disquieting, socially necessary truths about racism, sexism, and other systemic inequities'.[40] Throughout the narrative, SQUID is progressively repurposed as a means to bear witness to sociopolitical inequalities. As Zimmerman points out, *Strange Days* rejects 'the first-person extremity of experience fantasized around the SQUID narrative… in favor of what we might call "referential abstraction," a move away from "pure" or literal personal experience into an attempt to situate first-person experience only as understandable in relation to technological and social mediation and to sociohistorical memory formations.'[41] *Strange Days* suggests that true agency can only be performed at the site of the user's own embodied position, which is contingent upon the limitations of that body's material and sociocultural situation.

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[38] S. Turkle, 'Constructions and Reconstructions of Self in Virtual Reality: Playing in the MUDs' in *Mind, Culture and Activity*, vol. 1, no. 3 (Summer 1994), 164.
[39] *The Future of Flesh*, 186.
[40] S. Macek, 'The Political Uses of the Neo-Noir City: Ideology, Genre, and the Urban Landscape in 8mm and Strange Days' in *Journal of American & Comparative Cultures*, vol.25 no. 3-4 (September 2002), 382.
[41] 'Surveillance and Social Memory', 311-312.

The Limits of 'Interactivity'

Strange Days is also engaged in a reflexive and critical problematisation of media interactivity, in ways which invoke the slippery contingency of interactivity as a concept. As Ron Burnett, notes, '[i]nteractive practices in the digital age are generally described as a function of what can be done to images… Interactivity is also talked about as if it were a new process.' In fact, Burnett asserts, media are always-already interactive, since 'interaction is fundamental to the creation of audiences.'[42] Interactivity, for Burnett, hinges upon the spectator's transformational relation to the mediated experience; to alter the experience of spectatorship by filling in the gaps of representation, regardless of the propensity for the user-spectator to literally manipulate the audio-image.

Strange Days seems to make a similar assertion through its evocations of the complicity of the SQUID user (and by extension the spectator) in violent and exploitative acts, and how it empowers Mace and Lenny to reject and repurpose the technology's proffered experiences. At the same time, the film is deeply resonant with contemporary attempts to refigure cinematic and other media experiences in relation to new experiential modes offered by the domestic proliferation of interactive digital media. Peter Lunenfeld asserts that:

> As computers moved out of the workplace and into the home, their capacity for nonlinear assemblage… disrupted their users' expectations of linearity and fuelled a hunger for interactivity as an end unto itself, rather than simply a means. The privileging of the interaction between user and machine became a grail of computer-based media, and the quest for this interaction generated a potent combination of technological, cultural and economic narratives.[43]

The 'new myths' that emerged as a result of these new experiential modalities 'revolved around the notion that the narrative impact of film could be grafted to the networked nonlinearity of the digital to create a liberatory new narrative cinema.'[44] While Lunenfeld's prime example of this is 'interactive cinema' ('a much-hyped hybrid that never did quite make it'[45]), *Strange Days* itself produces a quite different, but nonetheless deeply connected response to the shifting modalities of extra-cinematic media experience.

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[42] R. Burnett, *How Images Think* (Cambridge, MA: MIT press, 2004), 90.
[43] P. Lunenfeld, 'The Myths of Interactive Cinema' in M. Ryan (ed.), *Narrative Across Media: The Languages of Storytelling* (Lincoln: University of Nebraska Press, 2004), 381.
[44] Ibid., 382.
[45] Ibid., 378.

By imagining an intensely immediate, and yet non-interactive virtual experience, *Strange Days* presents an inversion of the ostensibly liberating potentialities of digitally mediated engagements. As Rodowick asserts, '[b]efore the digital screen we do not feel a powerlessness, but rather express a will to control information and to shape ourselves and the world through information.[46] But in *Strange Days*, meaningful intentional action *succeeds* mediation, rather than directly being a part of it. SQUID clips, like cinema, cannot be manipulated at the point of contact, proffering experiences over which characters, ultimately, have no control. Their use value emerges only when they are brought to bear upon meaningful action in the diegetic world. In this way, *Strange Days*' representation of virtual experience resonates with Slavoj Žižek's work on media 'interpassivity' – a term which describes the ways in which online, gaming and other new media experiences often produce an *illusion* of interactivity which in fact constitutes 'a phenomenon that is [its] exact obverse'.[47] Žižek posits that interactivity is defined in two ways: first, as 'interacting with the medium, that is, not being just a passive consumer', and second, as the activity of 'acting through another agent, so that my job is done, while I sit back and remain passive, just observing the game.'[48] For Žižek, interpassivity is an inversion of this second definition, in which 'the subject is incessantly – frenetically even – active, while displacing on to another the fundamental passivity of his or her being'.[49] In such encounters, the perpetual circulation of endless repetitive action or opinion results in a fetishization of contribution which is, in effect, passive and inconsequential.

Thus the attempt to create interactive experiences may, paradoxically, produce more passive users. Like the passive subject, the interpassive subject is being acted upon in prescriptive ways: it enjoys, is shocked by, or acknowledges, something which is pregiven. Inter-passivity, then, is the act of leaving it to something or someone else to externalise emotional responses. As an example, Jan Jagodzinski notes:

> [T]he avatar in a chat community is e-moting for us, externalizing and embodying our very emotions. Through our disavowal of these agents—this is mere simulation, this is only a game, this is not "real"— we slowly let them take over our lives having to face the question of "impassivity", which is the other side of media interactivity that is disavowed.[50]

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[46] *The Virtual Life of Film*, 174.
[47] S. Žižek, 'Is It Possible to Traverse the Fantasy in Cyberspace?' in E. Wright and E. Wright (eds.), *The Žižek Reader* (Oxford: Blackwell Publishers, 1999), 104.
[48] Ibid., 105.
[49] Ibid., 106.
[50] J. Jagodzinski, *Youth Fantasies: The Perverse Landscape of the Media* (New York: Palgrave Macmillan, 2004), 221.

Strange Days' SQUID clips similarly evoke the illusion of interactivity in that they represent holistically embodied, visceral and immediate experiences of *doing*, while clearly situating the intentional action and agency at the site of the recorder – or what we might conceive of as the 'avatar'. The ersatz interpassivity which characterises the use of SQUID clips can only be diegetically overcome by the transmutation of the kinds of passive consumption proffered by old and new media experiences, into worldly (narrative) action.

Strange Days' reflexive questioning of agency and control is moreover resonant with Zabet Patterson's compelling reading of the cover of *Time* magazine's sensational 1995 report on 'Cyberporn',[51] in which she notes that a contemporary moral panic surrounding internet pornography was often articulated specifically around human-machine relations. The cover displays an image of a nude man embracing a keyboard and PC monitor, who seems 'to dissolve into the screen.' In this image, Patterson notes,

> we can begin to discern the visual tropes that would become mobilized around the issue of Internet pornography. It is a visual rhetoric of anxiety specifically located at the rapidly evolving interface between corporeal body computer screen. It is an anxiety concerning the possible lack of control and autonomy of that body when confronted with this technology.[52]

The image of a man 'solipsistically collapsing into himself in masturbatory pleasure'[53] is resonant with *Strange Days*' representation of pornographic SQUID clips and the abandonment they engender. Moreover, the rape and murder of Iris hyperbolises this sense of disempowerment, and the limits of agency in digital play – instantiating a loss of control and an undesirable recognition of the material and embodied contingencies of technologized experience.

'Reality' Effects

Alongside *Strange Days*' reflexive questioning of the limits of immediacy and interactivity runs a similar ambivalence regarding media's ability and impetus to capture the 'real'. In exploring the intersections between (sexualised) violence and reality, *Strange Days* resonates with contemporary fears surrounding the proliferation of 'real' sex and violence online – across a vast and largely ungovernable globalised informational network. Despite the fact

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[51] P. Elmer-DeWitt, 'On a Screen Near You: Cyberporn' in *Time* (3/7/1995), 37-41.
[52] Z. Patterson, 'Going-On Line: Consuming Pornography in the Digital Era' in L. Williams (ed.), *Porn Studies* (Durham, NC: Duke University Press, 2004), 104.
[53] Ibid., 105.

that, as James Kincaid notes, 'researchers [in the mid-1990s] found nothing on the internet that is not also in adult bookstores,'[54] a contemporary climate of fear surrounding online content is evidenced for example in the proposed Communications Decency Act of 1995 in the United States, which would have required intermediaries to control access to 'indecent' material online.[55]

In particular, *Strange Days* explicitly engages with the cultural mythology of the snuff film. As Pamela Donovan notes, while the origins of this legend can be traced back to 1969,[56] the concept of 'real death on film' became more cemented in public discourse throughout the 1970s through films such as *Snuff* (Findlay and Findlay, 1976) and the 'mondo' genre,[57] as well as vocalisations from conservative, anti-pornography groups which insisted upon its existence in reality.[58] Subsequently, films such as *Videodrome* (Cronenberg, 1989), *My Little Eye* (Evans, 2002) and *V/H/S* (multiple directors, 2012) have engaged with the mythology of snuff. However, while all of these examples associate snuff with videotape, *Strange Days*' narrative and aesthetic portrayal of SQUID death recordings – diegetically referred to as 'blackjack' clips – prefigures how snuff, as a cultural mythology, was shifting from being primarily associated with film or video to being, as it is now, primarily associated with the internet.[59] Donovan explores how the inception of the internet provided new platforms for the discussion and dissemination of this particular cultural imaginary; from the mid-1990s, snuff film was being widely discussed on newsgroups[60] and in the popular media – mainly from a debunking viewpoint.[61] In taking

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[54] J. Kincaid cited in P. Jenkins, *Beyond Tolerance: Child Pornography on the Internet* (New York: New York University Press, 2001), 11.

[55] This was ultimately was declared unconstitutional on the grounds that large-scale filtering would inevitably affect protected forms of speech and expression along with infringing material. See J. Karaganis, 'Disciplining Markets in the Digital Age in id. (ed.), *Structures of Participation in Digital Culture* (New York: Social Science Research Council, 2007), 264.

[56] P. Donovan, *No Way of Knowing: Crime, Urban Legends and the Internet* (New York: Routledge, 2003), 31.

[57] Mondo, as Dolores Tierney notes, which is 'often described as the closest legal equivalent to snuff, is dedicated to displays of spontaneous and genuine death'; it is captured by, but not staged for, the camera. See D. M. Tierney, 'The Appeal of the Real in Snuff: Alejandro Amenábar's *Tesis* (*Thesis*)' in *Spectator*, vol. 22, no. 2 (Autumn 2002), 46.

[58] *No Way of Knowing*, 31-32.

[59] As most recently evidenced, for example, by the widely publicised availability of ISIL execution videos online; see for example R. Callimachi and K. De Freytas-Tamura, 'ISIS Video Shows Execution of David Cawthorne Haines, British Aid Worker' in *New York Times*, 13/09/2014 [available at http://www.nytimes.com/2014/09/14/world/middleeast/islamic-state-says-it-has-executed-david-cawthorne-haines-british-aid-worker.html, accessed 13/01/2015]; J. Beale, 'Iraq crisis: ISIS 'releases more execution footage', *BBC News* video, 02:55, 16/06/2014 [available at http://www.bbc.co.uk/news/world-middle-east-27875894, accessed 13/01/2015].

[60] *No Way of Knowing*, 39.

[61] See for example R. McDowell, 'Movies to Die For' in *San Francisco Chronicle* (7/8/1994), 5 and M. Caro, 'Legend Lives On, Despite No Proof that Snuff Films Exist' in *Chicago Tribune* (26/2/1999) [available at http://articles.chicagotribune.com/1999-02-26/features/9902260327_1_snuff-yaron-svoray-films, accessed 13/02/2016].

up this mythology, and the beginnings of its migration online, *Strange Days* represents 'blackjack' clips as digitally stored and reproducible experiences, enmeshing snuff as an existing popular cultural imaginary with its emergent implications in a world of increased digital distribution and media intensity. While *Strange Days* does not diegetically represent a networked distribution system for SQUID recordings (which are rather disseminated on the black market), it provocatively alludes to the potential for death and other deeply personal experiences to be reproduced, disseminated, commoditised and decontextualised far beyond the potentiality of analogue media.

The aesthetic presentation of SQUID clips works to convince us of the diegetic reality of their often grisly contents. In her article 'The Appeal of the Real in Snuff', Dolores Tierney explores how Alejandro Amenábar's *Tesis* (1996) 'attempts to convince us of its realism by pitting snuff against special-effects violence.'[62] As Tierney notes, 'slasher films – and other horror or gory sub-genres – are rather more concerned with visual excess rather than the realism which is the central concern of snuff.'[63] Similarly, *Strange Days* eschews traditional special effects in its 'blackjack' sequences, rejecting typical spectacular presentations of violence in favour of a gritty and immediate aesthetic. Despite the film's efforts to present such sequences as haptic, fully embodied experiences of death, *Strange Days* eschews the impetus to represent them through graphic bodily violence or gore. As Tierney notes, 'the "attraction" in the snuff or mondo film – death – derives its charge from the *banality* of the aesthetics' which convince us of its 'authenticity.'[64] Of course, this allowed *Strange Days* to achieve a coveted R rating, but it also functions to convince viewer and character of the diegetic veracity of the recording. Before she is exposed to it, Mace considers SQUID fundamentally unreal and untrustworthy; after Lenny views the clip of Iris' death, and verbally relates the events to Mace, she asks, "are you sure it's real?" It is only when she experiences the gritty banality of SQUID for herself that Mace is both fully convinced of its authenticity and assured in her conviction about its dangerous implications.

Strange Days also figures snuff as something which is drastically other than cinematic experience. Hyperbolising the radical 'reality' represented by both snuff and pornography, SQUID clips extend beyond the audiovisual basis of cinema or video in their propensity to communicate the holistic sensory realities of sex, violence and death – realities which popular Hollywood cinema emulates rather than produces. Such clips are striking in how

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[62] 'The Appeal of the Real in Snuff', 46.
[63] Ibid., 49.
[64] Ibid., 53.

'un-cinematic' they appear, how unbounded by established aesthetic conventions despite their (diegetic and actual) analogue ontology. This calls attention both to the formal contingencies of realism, and to the disconnection between (even indexical) media images and their immediate worldly contexts. While the austere aesthetic of *Strange Days*' SQUID sequences enhances their visual connotations with the kinds of realism in fictional 'snuff' and mondo films, it also enhances their connotations with contemporary online videos, despite the absence of actual digital imagery. Clips recorded from the perspective of the murderer, Max (who is colour-blind) are so desaturated that they almost appear black and white, recalling the comparatively low image-quality and desaturation of contemporary media players such as Quicktime, and early webcams which had recently entered the domestic market.[65] This hybrid aesthetic, which is paradoxically novel and banal, underscores the film's broader suggestion that the unbounded dissemination of 'authentic' reality as 'virtual' experience ironically threatens to diffuse its worldly impact.

Strange Days moreover communicates both the noetic possibilities and the questionable veracity of SQUID. This ambivalent uncertainty resonates with Thomas Johnson and Barbara Kaye's 2000 study on how, over the previous decade, '[t]he proliferation of misinformation and pranks pervading the Internet has caused some to call the Internet's credibility into question and to fear whether the growth of the Internet will further drive down credibility ratings of traditional media.'[66] While SQUID clips are optical recordings, and there is no suggestion that they may be edited or manipulated by either digital or non-digital means, the climax of the film highlights a latent danger of deception endemic to all forms of mediated experience, and is particularly evocative of a growing sense of scepticism surrounding digital media. Lenny discovers a clip deliberately left for him, recorded from the point of view of the killer. We watch the latter break into Faith's hotel room and stalk her in a manner which closely mirrors his actions prior to the rape and murder of Iris. After Faith is attacked and bound to the bed, Lenny and the spectator realise that this is no murder scene – just an erotic game. At this point, the identity of the killer is revealed to be Lenny's friend and confidant Max, through his deliberate, mocking glance into the mirror. The scene's enactment of a conventional Hollywood thriller twist – authored by the characters as duplicitous performance – reflexively disrupts any uncomplicated connection of indexical recording to the idea of 'truth', highlighting the

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[65] The first widely marketed webcam device, 'QuickCam', was launched in 1994.
[66] T. J. Johnson and B. K. Kaye, 'Using Is Believing: The Influence of Reliance on the Credibility of Online Political Information among Politically Interested Internet Users' in *Journalism & Mass Communication Quarterly*, vol. 77, no. 4 (December 2000), 865.

inherent disjunction between mediation and reality and the need to be increasingly dubious of even indexically recorded images in the contemporary present.

While *Strange Days* cautions against the distribution and consumption of decontextualised experience**,** it asserts the testimonial value of this kind of raw reality when understood in relation to its original context. This factor has particular poignancy in the wake of the videotaped beating of Rodney King in 1991, and the publicised trials, acquittals and civil insurrection culminating in the LA riots, which followed its dissemination. The tape of LAPD officers beating King in fact bears a striking resemblance, in terms of perspective and setting as well as content, to the SQUID clip of Jeriko's murder. Having witnessed the latter recording, Mace muses: "People finding out… that the LAPD just flat out executed Jeriko One. Jesus. Maybe they ought to see." *Strange Days* produces a productive dichotomy between the mediated 'real' associated with snuff, pornography and violence, and the diegetic real of social, ethical and human which it reflexively aligns with its own cinematic narrative resolution. On the use of SQUID as a conduit for evidence, Young reads the film as an ultimately positive affirmation of cinema's representational function.

> *Strange Days*' faith in the progressive force of recorded evidence seems pat and naïve – and not a little self-interested on Hollywood's part. Bigelow… turns the clip into yet another evidential medium in a long line of such quasi-filmic devices that affirm the cinema as a sentinel against social disorder.[67]

Yet as I have noted, the film's faith in recorded evidence is far from unqualified, and it is important not to overstate the extent to which *Strange Days* champions cinema over new media – it does not do this straightforwardly. The idealised diegetic function of SQUID as evidence, for example, would appear to have more in common with journalistic or documentary filmmaking or television than 'cinema' as Hollywood entertainment. What's more, as I have argued, SQUID cannot be read as an uncomplicatedly 'cinematic' technology, inflected, as it significantly is, by the modalities of digital mediation and the cultural imaginaries which surround it. *Strange Days* highlights the ineffectuality and impossibility of isolating particular media forms in terms of their relative truth value since, as Zimmer notes, 'mediating images are uniquely poised to avoid the dichotomous logic of

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[67] *The Cinema Dreams its Rivals*, 220.

truth/fiction through a series of technological and narrative interpenetrations that render that duality illegible.'[68]

Memory, Time and 'Liveness'

Through figuring SQUID as somewhere in between indexical, quasi-cinematic and virtual experience, *Strange Days* also reflexively meditates on both cinema's inexorable pastness and digital media's sense of perpetual presence. As Brian Carr points out, SQUID evokes and overcomes what Metz outlines in *The Imaginary Signifier* as the sense of loss at the heart of cinema, which differentiates it from other representational media in that the filmic image shows 'a set of objects no longer present, objects lost to another space and time.'[69] For Carr, SQUID overcomes this through producing a sense of presence in which the user-spectator can 'not only see, but be in the place of another, a spectatorial transportation that puts one into direct access with an alternate life world.'[70] SQUID is 'relived', rather than 'rewatched' – events are not experienced as being reiterated but as actually happening again. Yet the moral (and evidential) value of SQUID within the diegesis is contingent upon its original temporal context – the socio-historical significance of the past event and its relevance to the here and now of the present (narrative) situation. The clip of Iris' rape and murder sends Lenny and Mace speeding to the scene in the vain hope of rescue, while the clip of Jeriko's murder must be delivered to the police before all-out race war erupts. While Mace tells Lenny that his "memories [are] meant to fade . . . they are designed that way for a reason," the clip of Jeriko's death is meant to endure; it is of genuine value precisely because of its present, real-world relevance.

The perpetual sense of presence which characterises a SQUID experience aligns it with the testimonial 'liveness' of televisual and digital news reportage. Commenting on the function of 'indexicality' in these forms, Mary-Anne Doane states that

> [a]lthough the televisual and digital representations of explosions are not photographically based, their indexicality is a function of the strength of their exhortation to 'Look here!', 'See this'… The liveness of the televisual image ensures its adhesion to the referent just as the index adheres to its object, and the website makes that 'liveness' relivable at the touch of a finger.[71]

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[68] 'Surveillance and Social Memory', 136.
[69] B. Carr, 'Strange Days and the Subject of Mobility' in *Camera Obscura*, vol. 17, no.2 (2002), 191.
[70] Ibid., 192.
[71] M. A. Doane, *The Emergence of Cinematic Time: Modernity, Contingency, the Archive* (Cambridge, MA: Harvard University Press, 2002), 208.

It is the logic of the website as outlined by Doane which also defines *Strange Days*' attitude to the potential mendacity of mediation. On the other hand, the present topicality associated with television reportage is figured largely positively within the film's moral framework. In an early scene in Lenny's apartment, his lack of engagement with television news is depicted as naïve and obtuse. Ambivalent towards the intensifying political situation, he glances distractedly at the television coverage of Jeriko's death while sucking on an ice lolly – passively and self-centredly absorbing his privileged disconnection from the 'real'. Lenny then switches off the television and wires himself up to SQUID – to perpetually relive virtual liveness 'at the touch of a finger.' In his self-centred regression into his personal past, Lenny has bought into a self-administered deception at the expense of present day reality. Lenny and other SQUID users' instantly gratifying consumption of second hand experiences evokes the ease of rewatching represented by perpetual digital liveness. Excised from their temporal, material and social contexts, such clips function to preclude the user's own propensity for temporally situated sociocultural engagement.

As Patricia Pisters notes, *Strange Days* resonates with a Bergsonian ethics of time. She draws on Bergson's argument, in *Matter and Memory*,[72] to suggest that 'there is a profound relation between memory, body and perception':

> Someone who lives in pure presence, reacting immediately to every excitement of the body, is impulsive, not able to react properly. But on the other hand it is also possible to give too much preference to memory and memory-images… Between these two extremes Bergson places a memory that is willing to follow the demands of the present moment, but that can resist irrelevant demands.[73]

While Lenny is caught in the past, the memory-images of his relationship with Faith also produce a sense of illusory presence which stunts his ability to operate, or act, effectively within the (real) present. As Pisters points out, the only character to strike a balance between mind and body, past and present, is Mace.[74] As she tries to free Lenny from his perpetual reliving of the past, she implores him to recognise that 'this is real time… right here, right now.'[75] One sequence, recorded from Lenny's POV, appears as a parodic invocation of cinematic pastness. We see him roller-skating with Faith, following her back to their apartment, and eventually making love to her to the bathetic musical

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[72] H. Bergson (1896) (N. M Paul and W. S. Palmer trans.), *Matter and Memory* (New York: Zone Books, 1988).
[73] P. Pisters, 'The Universe as Metacinema' in J. Jagodzinski (ed.), *Psychoanalyzing Cinema: A Productive Encounter with Lacan, Deleuze, and Zizek* (New York: Palgrave Macmillan, 2012), 193.
[74] Ibid.
[75] This is a recurring line in *Strange Days*; originally uttered by Jeriko One and later repeated by a caller during a radio show.

accompaniment of Bob Marley's 'Everything's Gonna Be Alright'. This hyperbolic allusion to classically 'romantic' cinematic scenes underscores the film's reflexive privileging of the now – its conviction that media is valuable in terms of its present function, rather than simply indulging repetitive, escapist and formulaic fantasies.

Set a mere four years after its release, *Strange Days*' ethics of time testifies to its reflexive reconciliation of cinema's 'pastness' with its self-asserted relevance in the present. Through its ambiguous critique both of the pastness of cinema and the presence of 'live' media technologies, *Strange Days* advocates a balance between (historical) memory and (social) presence. Thus *Strange Days*' representation of VR complicates associations of old media with the past, new media with the future. In their 2000 study, *Remediation*, Jay David Bolter and Richard Grusin argue that all media 'remediate' older media through conscious appropriations of their formal practices. In their words, remediation describes 'the formal logic by which new media refashion prior media forms.'[76] For Bolter and Grusin, 'new media' operate through a 'double logic' hypermediacy and immediacy – that is, they engage in the proliferation of mediation while, paradoxically, seeking to erase its visibility.[77] While remediation is useful in describing how we understand media through other media – to which *Strange Days*' exploration, extrapolation and prefiguration of emergent media forms attests – criticisms of remediation have apprehended how the element of 'pastness' intrinsic to the concept tends to disavow precisely what could be *new* about new media technologies.

In response to criticisms that remediation 'functions only retroactively and doesn't project into the future',[78] Grusin has gone on to argue that in addition to remediation, cinema in particular also functions via 'premediation'. By this, Grusin means that cinematic visions of the future function to produce *a priori* understandings of the future without, of course, straightforwardly predicting it. As such, 'the future is remediated before it even happens… [T]he future is remediated at the very moment that it emerges into the present'.[79] In other words, films like *Strange Days* function not only to depict future media technologies as remediations of current and past media technologies, but they also provide us with a means to reflect upon and understand the potentialities of new media in the future. The growth of the internet, which allowed for more of an interactive experience with visual media than ever before, means that *Strange Days*' social commentary has perhaps become increasingly apt since the film's release in 1995. The personalised and

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[76] *Remediation*, 273.
[77] See *Remediation*, 147–158.
[78] B. McCorkle, *Rhetorical Delivery as Technological Discourse: A Cross-Historical Study* (Carbondale: Southern Illinois University Press, 2012), 25.
[79] R. Grusin, 'Premediation' in *Criticism*, vol. 46, no.1 (Winter 2004), 29.

sensationalistic content of SQUID clips, and their provision of shared, endlessly replayable experience evoke 21st century viral videos, which are also often presented from the author's POV. *Strange Days* also prefigures the enduring, irrepressible archiving of personal data, profiles and memories on social media in ways which give retrospective resonance to Mace's assertion that "memories were meant to fade."

Conclusion

What is of central importance in *Strange Days* is the co-dependence of its narrative and aesthetic strategies in its adoption, permutation and interrogation of various multimedia modalities. But the question remains of why, exactly, the digital is so elusive here. The formal ambiguity with which SQUID is represented allows the film to reflexively comment not only on the potentialities of future digital technologies, but on the present and future of cinema itself. As is to be expected given that Hollywood narratives are always going to be, to some extent, self-interested and self-validating, *Strange Days* suggests that the apparent freedom, interactivity, immediacy and 'reality' which new media may offer could well be a dangerous illusion, an unnecessary addiction.[80] *Strange Days*' ultimate declaration of itself as cinema is reflected in the film's idealistic ending where, against a backdrop of a gigantic New Year's Eve party in downtown LA, Lenny and Mace finally kiss – a symbol of the averted race war. Here, as Rascaroli notes, 'we recognise the codes of filmic fiction'.[81]

Despite its conventional ending, however, *Strange Days* enacts a process of narrative and aesthetic self-transformation, positing that that it is only through such a responsive process that cinema can adopt, adapt and naturalise the digital. Through its representation of SQUID, *Strange Days* imbues its own cinematic image with affective signifiers of old and new media technologies, in order to represent a world increasingly multimediated through a range of temporal, visual and narrative modalities. As Veronica Hollinger and Joan Gordon note, 'the challenge for science fiction today is less to extrapolate a far future than to keep up with a permanently mutable present.'[82] Taking up this challenge, *Strange Days* envisions a hypermediated world in which the audience is given to half-believe, and in which the codes of cinema inflect the uses and experiences of future media technologies.

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[80] Ibid., 19.
[81] 'Strange Visions'.
[82] V. Hollinger and J. Gordon, cited in N. K. Hayles and N. Gessler, 'The Slipstream of Mixed Reality: Unstable Ontologies and Semiotic Markers in *The Thirteenth Floor*, *Dark City* and *Mulholland Drive*' in *PMLA*, vol. 119, no.3 (May 2001), 482.

Through its wilful elision of the digital – as media form and cultural imaginary – and its figuration of SQUID as a form of expanded (analogue) cinema, *Strange Days*' reflexively stages the mutual processes by which different media forms variously appropriate, reshape and reject one another. As Bolter notes,

> Producers of digital media want to challenge the cultural status of conventional film and television by appropriating and refashioning the representational practices of these older forms. Film and television producers are ready to appropriate digital techniques in turn, whenever they can do so while retaining what they regard as the key qualities of their systems of representation.[83]

By retaining the formal qualities of analogue cinema, *Strange Days* appropriates and comments on the spread of digitally mediated experience from a reflexively cinematic perspective. By imagining a medium which extends beyond the audiovisual limitation of cinema, *Strange Days* refigures cinema's formal and narrative conventions in relation to the emergent modalities of digitally mediated experience.

Despite the lack of digital visual effects and the diegetic downplaying of digital media, SQUID technology occupies a complex ontology between the cinematic and the digital, a narrative and aesthetic negotiation between (and interrogation of) both. As an analogue of experience which is digitised for playback, SQUID alludes to the relation between binary data and its material manifestation. On the material instantiation of digital data as phenomena, Massumi asserts that '[o]utside its appearance, the digital is electronic nothingness, pure systemic possibility. Its appearance from electronic limbo is one with its analog transformation.'[84] The digital in *Strange Days*, like digital data in its purest form, is virtually invisible. It is substantiated in the film, as it is in experience, through a return to the analogue. *Strange Days* communicates an underlying insistence that any and all mediation can only be meaningfully apprehended in its worldly material manifestation – a conviction underscored in the narrative and moral economies of the film.

By attesting to the inherently material and worldly basis of experience, *Strange Days* moreover calls into question ontological and moral distinctions between digital and indexical phenomena. The film's encompassing allusions to various mediated forms of address mean that, ultimately, the positive and negative potentialities of SQUID are not unproblematically aligned with one media ontology or another. The film is redolent of how, as Zimmer asserts, cinema, video and digital media function 'through interpenetration

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[83] J. D. Bolter, 'Transference and Transparency: Digital Technology and the Remediation of Cinema' in *Intermediality: History and Theory of the Arts*, no. 6 (2005), 14.
[84] B. Massumi, *Parables for the Virtual: Movement, Affect, Sensation* (Durham: Duke University Press, 2002), 138.

of one another', so that 'the possibilities of perversions of intended uses increase exponentially.'[85] *Strange Days* seems to suggest that media representations – whatever their formal basis – will always be partial and incomplete, and may risk producing experiences too unqualified in their affect, too radical in their disjunctions of time and identity, too insistent upon their propensities to represent or shape the contemporary real. The film stages and evinces a coalescence of media forms to such a degree that their relative 'values' – their relations to and effects upon truth, reality and immediacy, elude formal specificity. Through narrative and special effects, *Strange Days* draws attention to the necessary co-operation of visual knowledge with embodied sensation, the lived body's intimate connection to media technologies of all kinds and, in parallel, the mutual and perpetual coalescence between cinematic and digital media.

[85] 'Surveillance and Social Memory', 136.

Chapter Four
On Three Dualities within *The Matrix*

Released in 1999, *The Matrix* (Wachowski and Wachowski) imagines a future in which the known world is in fact a simulation. Protagonist John Anderson – alias Neo – a computer programmer and amateur hacker, is contacted over the internet by a group of underground freedom fighters and their leader – Morpheus – who reveals to him the true nature of 'reality'. The eponymous 'Matrix' is a simulation modelled on our world in the year 1999. The actual year, Morpheus tells us, is "closer to 2199". By this time, artificial intelligence has enslaved humanity within biotechnological farms, keeping their physical bodies in stasis while their consciousness is suspended in a VR program. Since its release, *The Matrix* has been widely analysed in relation to such diverse factors as its immense popularity,[1] its ground-breaking digital special effects and its 'pop-philosophy' narrative – its textual nods to Baudrillard (a copy of *Simulacra and Simulation* is seen in Neo's apartment, for instance) and its evocation of Kantian and Lacanian ideas, among others.[2]

To tread new ground in this already well-trodden discursive field, I explore how *The Matrix* complicates three commonly opposed dualities: spectacle and narrative, body and mind, cinematic and digital. Contrary to many analyses of the film, I demonstrate how these ostensible oppositions become porous and interlinked in their affective and conceptual, diegetic and extra-diegetic operations. Dann L. Pierce and Katherine Kaufman have already discussed how *The Matrix*'s narrative is undertaken through such aesthetic devices as rhetorical uses of colour, mise-en-scène, and cinematography,[3] while Dan North and Simon Lewis address narrative roles of virtual bodies and spectacular sequences in *The Matrix*.[4] Building upon such studies, I analyse how *The Matrix*'s spectacular effects both support and augment its narrative, particularly through the bodily and cognitive evolution of Neo, which is expounded through his progressive accomplishment of increasingly masterful and spectacular feats. Along with Neo, both the spectator and the film itself are

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[1] *The Matrix* grossed $171,383,253 at the US box office up to 19th September 1999, according to the Internet Movie Database, see http://www.imdb.com/title/tt0133093/business [accessed 3/6/2011].
[2] There are a variety of books on the philosophy of *The Matrix* (and its sequels), for example W. Irwin, *The Matrix and Philosophy: Welcome to the Desert of the Real* (Chicago: Open Court, 2002) and M. Lawrence, *Like a Splinter in Your Mind: The Philosophy Behind the Matrix Trilogy* (Oxford: Blackwell Publishing, 2004).
[3] D. L. Pierce and K. Kaufman, 'Visual Persuasion Tactics in Narrative Development: An Analysis of *The Matrix*' in *Visual Communication Quarterly*, vol.19, no. 1 (2012), 33-47.
[4] See D. North, 'Virtual Actors, Spectacle and Special Effects: Kung Fu Meets 'all that CG Bullshit" in S. Gillis (ed.), *The Matrix Trilogy: Cyberpunk Reloaded* (London: Wallflower Press, 2005) and S. Lewis, 'What is Spectacle?' in *Journal of Popular Film and Television*, vol. 42, no. 4 (2014) 214-221.

engaged in deeply interconnected processes of transformational engagement with the digital and the virtual.

I moreover explore how *The Matrix* refracts a contemporary moment at which digital media and imaging technologies had increasingly shaped paradigms of experiential and cinematic 'reality'. *The Matrix* was released during a period when computer and internet ownership in the United States was growing rapidly. Between 1997 and 2000, the number of US households with a computer increased from 36.6% to 51%, while households connected to the internet increased a staggering amount – from just 18% to 41.5% over the same period.[5] Moreover, between 1998 and 2001, home video gaming was the fastest growing entertainment industry. 1999 was the first year in which home video game revenues equalled the revenues of motion pictures, with domestic US sales totalling $7.4 billion.[6] Imagining a deceptive synthetic world modelled on the year of its release, *The Matrix*'s particular presentation of virtual space holds temporally and culturally specific meanings related to the unprecedented spread of new (digital) media. At the turn of the century, Manuel Castells notes:

> A culture of real virtuality, constructed around an increasingly interactive audiovisual universe, has permeated mental representation and communication everywhere… Space and time, the material foundations of human experience, have been transformed, as the space of flows dominates the space of places, and timeless time supersedes the clock time of the industrial era.[7]

This culture of 'real virtuality', and its spatiotemporal reconfigurations, are evidenced in a cluster of VR films released in 1999, including *The Matrix*, as well as Josef Rusnak's US-German co-production *The Thirteenth Floor* and David Cronenberg's Canada-France-UK co-production *eXistenZ*. Like *The Matrix*, these other VR films also imagine virtual worlds which are often indistinguishable from 'reality'. In comparison to earlier VR films (such as *Tron* and *The Lawnmower Man*) which tended to more decisively demarcate VR experience at the levels of aesthetics and narrative, *The Matrix* signals a point at which VR no longer signifies an experience quite so easily and completely sequestered from everyday life. Like the other VR films of 1999, *The Matrix* can be seen as a timely and ambiguous reaction to the growing proliferation of digital media at the turn of the century. As Alison McMahan

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[5] T. File, 'Computer and Internet Use in the United States' (Fig. 1), for the U.S. Department of Commerce; Economics and Statistics Administration, published by United States Census Bureau (May 2013) [available at http://www.census.gov/prod/2013pubs/p20-569.pdf [accessed 23/2/2015], 2.
[6] D. Williams, 'Structure and Competition in the U.S. Home Video Game Industry' in *International Journal on Media Management*, vol. 4, no. 1 (2002), 41.
[7] M. Castells, *End of Millennium: The Information Age* (Oxford: Blackwell, 1998), 1.

contemporaneously observes, the fear surrounding VR had become 'more metaphysical, a fear that at last we have reached an understanding of the human condition, and that understanding is that we are all players in some huge virtual reality game.'[8]

While *The Matrix* explores the dystopian premise that digitally mediated experience may eventually blur the boundaries between the real and the illusory, it simultaneously communicates more technophilic fantasies. While ambivalently exploring the potential for digital encounters to 'liberate' mind from body, the film also indulges a kinaesthetic fantasy of re-embodiment and phenomenal extension. While analyses like McMahan's have moreover suggested that *The Matrix* is a film about 'the digital' and its utopian or dystopian potentialities, it does not simply read as a vision of totalised *digital* mediation. In what follows, I access the extent to which *The Matrix* is also, to a great extent, a film about cinema itself: staging and enacting its own formal transformation through and against the proliferation of digital media and imaging technologies, reflexively refiguring cinema's aesthetic, mythical and representational paradigms. Given the usual invisibility of the diegetic VR interface, and the seamless totality of the simulated world, it is as though those housed in the Matrix are immersed in a perfect 3D film. The master machines have realised Bazin's 'myth of total cinema' – the notion that the natural beginning and end point of cinema is the impetus to achieve ever-greater realism to the point of transparency, and the attendant disappearance of direct, unmediated existence.

> The guiding myth… inspiring the invention of cinema, is the accomplishment of that which dominated in a more or less vague fashion all the techniques of the mechanical reproduction of reality in the nineteenth century, from photography to phonograph, namely an integral realism, a recreation of the world in its own image, an image unburdened by the freedom of interpretation of the artist or the irreversibility of time.[9]

Divorced from human agency, the myth of total cinema is ultimately realised by the automatised mechanical reproduction of the 'real'. Similarly in *The Matrix*, the perfection of simulation leads not to personal freedom but to subjugation, not the control of 'reality' but its loss. In seeking the 'real' behind this totalised form of mediation, Neo must apprehend and master the very technology that has enslaved humanity in simulation. Concurrently, in narrating Neo's quest, the film must adopt, adapt and ultimately transform itself through

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[8] A. McMahan, 'Watching You Watching Me' in *Film-Philosophy*, vol. 3, no. 1 (June 1999) [available at http://www.film-philosophy.com/index.php/f-p/article/view/506/419, accessed 16/02/2015], no pagination.
[9] A. Bazin, 'The Myth of Total Cinema' in *What Is Cinema?*, vol. 1, 21.

and in relation to the digital image – to allow us to 'see beyond' the illusion of cinematic transparency.

It is not the technology in and of itself which imbues Neo with superhuman abilities, but rather his ability to engage, body and mind, with this technology. As Christina Lee notes, '[i]t is this same technology that not only suppresses, but also provides a site of effective resistance… the boundaries between flesh and computer hardware have become porous… technology is more than an avatar or artificial limb. Technology becomes the body, the body becomes technology.'[10] Neo's embodiment of digital technologies is reflexively paralleled in the film's own exuberant appropriation of digital phenomena: the transformative assimilation of the digital into its own (aesthetic and narrative) formal being. The mental and physical flexibility which Neo develops is mirrored by the flexibility which the digital itself lends to the cinematic image – often in ways which challenge spatiotemporal and photorealistic (and thus, the film often suggests, *deceptive*) paradigms of contemporary Hollywood cinema. Thus, in *The Matrix*, the story of the rebirth of a hero who must liberate humanity from omnipotent machines becomes an allegory of the rebirth of cinema itself in an increasingly digital age. Neo, the film, and the spectator must concurrently internalise and master the ambiguous mediating systems which promise to broaden, or threaten to limit, our phenomenal scope – the Matrix, the digital (image and media), and the conventions of (Hollywood) cinema.

In what follows, I focus on the three main dualities which *The Matrix* raises and negotiates, mobilising existing discourse on the film in order to foreground the reflexive mutuality of the film's formal, diegetic and extradiegetic address. While there is a progressive and necessary bleed-through between sections, I begin with a brief analysis of how narrative and spectacle intertwine in *The Matrix* – particularly in its allusions to video gaming. Through this initial line of inquiry, I complicate some existing analyses of the film, and broader approaches to contemporary cinematic special effects. I continue to enmesh these arguments into my second section, on the film's preoccupation with body-mind relations as communicated mutually through narrative comprehension and affect. In the third, and most substantial section, these first two dualities are discussed in relation to the last – the relationship between cinema and the 'digital'.

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[10] C. Lee, 'Lock and Load (up): The Action Body in *The Matrix*' in *Continuum: Journal of Media & Cultural Studies*, vol. 19, no. 4 (2005), 564.

Spectacle and Narrative

As in previous chapters, I begin by refuting the widespread (though often implicit rather than explicit) discursive assumption that spectacle is somehow narrative's opposite, as well as the related suggestion that reflexive moments of extradiegetic address enacted through spectacle are inherently narratively disruptive. As a case in point, *The Matrix*'s largely computer-generated special effects are intimately involved in its ambiguous diegetic preoccupation with technological re-embodiment. To focus on its special effects as dominant, as several analyses of *The Matrix* have done, risks overlooking this close coalescence. Chuck Tryon, for example, considers *The Matrix*'s narrative as not only 'less important than the wizardry of the special effects themselves'[11] but fundamentally at odds with them, citing Patricia Mellencamp's assertion that there is a stark contradiction between the film's 'cyberphobic' narrative and the 'advanced' media technologies it utilises.[12] After the initial shock of *The Matrix*'s narrative twist, which occurs early on (and only on the first viewing), Tryon asserts that special effects, ultimately, carry the film. He stresses that '[t]he "astonishment" produced by *The Matrix* grew out of the fascination with the effects themselves, the transformation of time, space, gravity, and motion through the film's use of virtual camera movement.'[13]

Looking more closely at *The Matrix*'s narrative and character development beyond this initial twist, however, the idea that narrative subsequently plays second fiddle becomes less convincing. Following Neo's post-liberation journey, as he negotiates the phenomenological dimensions and conceptual implications of 'the Matrix', the viewer becomes acquainted with the 'rules of the game' at more or less the same rate. Neo struggles through spectacular and often digitally augmented fight sequences within the Matrix which are not separate from, but actually constitute the dramatic action in which the spectator is similarly implicated and invested. North sees the *Matrix* trilogy as representative of how, 'rather than striving to stultify and patronise the cinema audience with opiate and immersive sights, special effects technologies can stimulate the spectator intellectually by connecting text with context, image with apparatus.'[14] Indeed, the film's digital special effects often function as narratively persuasive not in spite of, but often *through* their allusions to the extradiegetic. *The Matrix*'s progressively more visceral

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[11] *Reinventing Cinema*, 50.
[12] P. Mellencamp, cited in ibid.
[13] Ibid.
[14] 'Virtual Actors, Spectacle and Special Effects', 48.

spectacular sequences work to convince us of Neo's advancing accomplishments within the diegetic world; and moreover function to align us, on a phenomenological level, with his expanding embodied and perceptive capabilities.

Another key facet of Tryon's argument is that 'privileging the narrative over the pleasures of the special effects misreads how the [*The Matrix*'s] audiences used the film.'[15] *The Matrix* was marketed to an active fan community through an abundance of 'supplemental' texts released both before and after the film's theatrical release – including a website,[16] graphic novels, video games, sequels, a collection of spin-off animated shorts[17] and the extensive 'making of' content on the film's 1999 DVD release. What's more, *The Matrix* influenced a variety of media beyond the franchise itself. As Dade Hayes writes in *Variety* in 2000, '[b]y last summer, TV commercials and competing film trailers borrowed from its jump cut karate sequences and techno soundtracks.'[18] Before and after its release, then, *The Matrix* developed through a vast structure of transmedia storytelling: through diverse and multiplicitous avenues of alternative, complementary media which allowed audiences to engage with the world of the franchise. This of course reflects the commercial basis of *The Matrix* as a product borne of media conglomeration and economic imperatives and structured as a multicommodity narrative, through which auxiliary products were often sold as 'narratively necessary purchases'.[19]

Yet *The Matrix*'s status as multimedia phenomenon is also evident in its internal narrative indebtedness to divergent media forms, and in the imbrication of its narrative with the film's wider cultural status as a multimedia and special effects showcase. As Jenkins notes, '[m]edia conglomeration provided a context for the Wachowski[s]' aesthetic experiment – they wanted to play with a new kind of storytelling and use Warner Bros blockbuster promotion to open it to the largest possible public.'[20] In addition to playing with a new mode of storytelling, the film also exhibits a diegetic reaction to the very structures from which it arises: a narrative which variously negotiates, exploits and explores the impact of an increasingly multimediated culture upon filmmaking and the material-digital flows of contemporary embodied experience. *The Matrix*'s narrative premise – that

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[15] *Reinventing Cinema*, 50.
[16] thematrix.com (now defunct).
[17] *The Animatrix* (Koji Morimoto et al., 2003).
[18] D. Hayes, 'WB's Sci-Fi 'Matrix' Nets 4 Tech Oscars' in *Variety* (25/03/2000) [available at: http://variety.com/2000/film/news/wb-s-sci-fi-matrix-nets-4-tech-oscars-1117779901/, accessed 27/01/2016].
[19] J. M. Proffitt, D. Y. Tchoi and M. P. McAllister, 'Plugging Back Into *The Matrix*: The Intertextual Flow of Corporate Media Commodities' in *Journal of Communication Inquiry*, vol. 31, no. 3 (July 2007), 242-243.
[20] *Convergence Culture*, 108.

there are virtual worlds in which the rules of space, time and physics can be bent – justifies its inclusion of diverse cinematic and extra-cinematic aesthetic strategies translated from video games, comic books, Kung Fu cinema and anime.

The Matrix is also often inflected by other media narratives at the level of dramatic structure. The sequence leading up to Morpheus' rescue, for example, is both structured and visually presented in ways which resemble contemporary first-person shooter games. Initially, it is established that there is a time constraint – Neo and Trinity must rescue Morpheus before the agents manage to extract crucial information from him. Before they embark on their rescue mission, the duo enter 'the construct' – another simulation created by the humans for the purposes of training and programming weapons to use in the Matrix. Here, they 'tool up' – selecting from a vast rack of firearms which recalls the weapon-selecting feature of many contemporary first-person shooter games. Inside the Matrix, the frenetic lobby shoot-out sequence is characterised by repetitive action in which Neo and Trinity skilfully evade enemy fire, ducking behind pillars. The characters are often shot from behind, echoing the 'camera' positions adopted by contemporary first-person-shooters such as *GoldenEye 007* (1997), *Half-Life* (1998) and *Counter Strike* (1999). After the battle, more classically 'cinematic', distanced cinematography is restored as Neo and Trinity escape up the exploding elevator shaft. In narrative context, and due to its return to a recognisably cinematic aesthetic, this moment is evocative of a video game cut-scene,[21] which in itself emphasises the significant aesthetic impact of cinema on 3D gaming, and vice versa. Finally, the sequence culminates in a frenzied 'boss battle' with Agent Brown atop the government building, but not before a reflexive visual nod to the Western genre – as Neo stands facing Brown, shot from behind, both figures deadly still as airborne papers drift like tumbleweed across the frame.

Beyond its hyperbolic exhibition of mutual intermedia influence, what is striking about this sequence is how narrative action is affectively augmented by the interweaving of cinematic and ludic elements. The diegetic conflict onscreen presents itself as a reflexive conflict between the paradigms of cinema and video gaming, which rises in intensity until the boundaries between the two forms blur. Game-like digital effects sequences – for example the exploding elevator and the rooftop bullet-time sequence – tussle with intricate stunt-work and acrobatics traditionally associated with action cinema. The scene's affective rhythms combine the assaultive and immediate action characteristic of gaming with the

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[21] In video gaming, 'cut-scene' (also referred to as in-game cinematic) refers to a non-interactive video segment, usually at the beginning or end of a level, which is often framed and virtually 'shot' within cinematic aesthetic paradigms.

self-conscious display of action film set-pieces, lending a sense of immediacy and presence while maintaining a driven, linear narrative progression. The sequence thus combines the structures and aesthetics of gaming with referential allusions to cinematic convention – emphasising, almost to the point of hyperbole, the plurality of media forms which have come to inflect popular cinema.

Body and Mind

In exploring how *The Matrix*'s affective employment of special effects works to engender narrative engagement, it is important to address the film's sustained concern with the duality of body and mind. On the surface, *The Matrix* institutes a disjunction between the operations of narrative and special effects – the former instituting a Cartesian reification of 'mind-over-matter', the latter remaining beholden to the body through viscerally affective address. But while *The Matrix* is centrally concerned with the mind-body duality, this reveals itself as a false dichotomy which, as is characteristic of earlier VR films, is progressively questioned and undermined at both narrative and aesthetic levels.

It appears that one function of this initial dichotomy is to exorcise predominantly masculine anxieties surrounding the stereotypical 'computer geek' identity – shared by the film's protagonist and, presumably, a large part of its target audience. In diegetic 'reality' (as distinct from diegetic VR), the benevolent majority of the *Nebuchadnezzar*'s crew have adapted to the pious observance of a kind of idealised sensory austerity. Dressed in stained and shabby clothes, the crew subsist on a bland, colourless gruel which is, Dozer informs us, "everything the body needs." They rely on VR training simulations in order to develop their skills; indeed, it is a wonder that these characters have maintained their hard-bodied physiques in 'reality'. A rejection of 'excessive' sensory pleasures is what separates 'good' characters from the 'bad' and the fatally flawed. Mouse, for example, attempts to solicit a sexual meeting between Neo and a hypersexualised virtual woman who he has coded into a VR simulation. When Neo refuses, Mouse argues that "to deny our own impulses is to deny the very thing that makes us human." This exchange in itself draws attention to the fissured boundary between embodied sensation and the virtual world. The admission that carnal activities are, of course, a not-insignificant part of digital encounters, appears to be raised in order to assuage any assumption that protagonist Neo might be suggestible to "jacking in" to such temptations. Reproaching Mouse for his proposal, the more benevolent characters vocalise a narrative need to deny the association between digital

engagements and sexual gratification; to excise the pornographic and masturbatory connotations of digital media use. Later, Mouse is inevitably punished – ambushed in the Matrix by Agent Smith's cronies as he sits ogling an image of his virtual woman. As he is riddled with enemy bullets, interspersed cuts to the real world show his body jerking convulsively, blood oozing from his mouth. That Mouse is the only character whose real life body *bleeds* at the point of death constitutes an apt visual metaphor for his proverbial red-bloodedness, or 'excessive' carnality.

The film dishes out similar treatment to the traitorous Cypher. In an early conversation with Neo, the former gestures to the enigmatic green code tricking down the monitors in front of him, and states, "I don't even see the code. All I see is blonde, brunette, redhead." Later on, Cypher's deception of the crew is painted as a partial reaction to Trinity's (sexual) rejection of him. "For a long time, I thought I was in love with you", he muses, leaning lasciviously over her recumbent body, his face obnoxiously close to hers. His desire for Trinity is above all sexual, in contrast to the more 'spiritual' connection which characterises Trinity and Neo's relationship. Respectively antagonistic and ineffectual, Cypher and Mouse are aligned with stereotypical representations of the digital media user as overzealously or frustratedly sexual. Their deaths exorcise negative stereotypes attached to the hacker-programmer identity idealised and glorified in *The Matrix* through (pale, slender) Neo. The demonisation of such stereotypes is almost farcically undercut, however, by the film's sustained display of Trinity's body in a skin-tight cat-suit. Yet both strands of bodily representation allow the spectator to revel in the visual pleasure afforded by the depiction of bodies as material – from Trinity's athletic and sexualised body to the grisly spectacle of Mouse's bloody demise, while the film safeguards benevolent male characters from any hint of carnal 'excess'.[22]

The idea of a mind-body split is also notably articulated through Morpheus' rhetorical dialogue throughout the film, in which he continually situates being and reality as all within the mind. After his injury in the Construct, for instance, Neo protests: "I thought it wasn't real", to which Morpheus replies, "your mind makes it real…The body cannot live without the mind." Later, he asks Neo: "How do you define 'real'?… If you're talking about what you can feel, what you can smell, what you can taste and see, then 'real' is simply electrical signals interpreted by your brain." Of course, as Hubert Dreyfus points out, Morpheus' reasoning is mistaken, since in phenomenal engagements the brain's 'inner

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[22] For a more sustained analysis of gender (and race) representation in *The Matrix*, see L. Purse, *Contemporary Action Cinema* (Edinburgh: Edinburgh University Press, 2011), 12-18.

electrical impulses are the *causal basis* of what one can feel and taste, but we don't feel and taste *them*.'[23]

In context, however, Morpheus' Cartesianism does not read as a similar naivety on the part of the film, which progressively undercuts and then rejects his perspective through its narrative-aesthetic emphasis on visceral affect and embodied engagement. In fact, Morpheus is directly and overtly punished for his 'mind-over-matter' philosophy when he is captured and interrogated by the agents. As Morpheus sits tied to a chair, bruised, bloodied and sweating profusely, it is Agent Smith's turn to scorn the organic body, to deride human corporeality – to hyperbolise Morpheus' prior assumption that embodiment is surplus, irrelevant, abject. "I hate this place", he insists, "I can't stand it any longer. It's the smell, if there is such a thing. I feel saturated by it. I can taste your stink. Every time I do I fear that I have somehow been infected by it. It's repulsive." Through this tirade, Morpheus' disavowal of materiality is turned back upon him as he is faced with the inescapable carnality of his own (diegetically 'virtual') body. Indeed the presence of blood, sweat and tears within the agents' seamless reconstruction of human reality (which Smith calls "this zoo") testifies to the primacy – the necessity – of embodiment in human perception. Whilst the film has previously tried to exorcise its characters' associations with the flesh, it now attests to the inescapability of embodiment, which permeates even its virtual world.

The significance of the body is also foregrounded in *The Matrix*'s sustained allusions to Kung Fu cinema. Neo's progressive corporeal enlightenment escapes a mind-body dualism as he adopts the hyper-mobile, ultra disciplined and crucially *mindful* bodily movements of Kung Fu. Summarising the theses of André Le Breton, Jean-Pierre Warnier notes that, in Western thought, 'the inheritance of Gnostic philosophy with its disdain for the body, the anatomical explorations of the Renaissance, Cartesian dualism and the style of life in contemporary modern societies reduce human beings to instrumental bodies.'[24] This approach to thinking about the body as distinct from the mind can largely be considered 'an invention of the Western world'.[25] As Samuel Umland and Karl Wessel suggest, the development of Neo's power in *The Matrix* recalls the 'magical body' immortalised in Chinese and Japanese popular cinemas, which 'arises through a practice which constructs a liminal phenomenological vehicle between body and mind, a vehicle

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[23] H. Dreyfus, 'Existential Phenomenology and the Brave New World of *The Matrix*' in *The Harvard Review of Philosophy*, vol. 11, no. 1 (2003), 21.
[24] J. P. Warnier, *The Pot-King: The Body and Technologies of Power* (Leiden: Brill, 2007), 285.
[25] Ibid.

simultaneously virtual and carnal.'[26] For Umland and Wessell, *The Matrix* sports a phenomenological attitude derived from Eastern cinemas as well as other various strands of Eastern philosophy and practice such as yoga and tai' chi, in which 'the mind awakens through the disciplined and devotional unfolding of the capacities and energies of the body.'[27] Indeed, in narrative context *The Matrix*'s Kung Fu sequences operate beyond their functions as spectacular displays of violence, or the simple visual appropriation of Hong Kong cinema – in fact, they also constitute a way of fissuring this paradigmatic border between physicality and cognition.

Prior to the film's first Kung Fu sequence, Neo 'learns' a variety of martial arts through software which feeds directly into his brain. As Neo lies supine in a chair, his head jacked into the ship's computer, the scene suggests an ostensible sovereignty of mind over matter. However, it is also reminiscent of Alison Landsberg's development of the notion of prosthetic memory, in which technological engagements which are separate from the realm of physical experience nevertheless constitute embodied memories.[28] Landsberg discusses the concept in relation to *Total Recall* (Verhoeven, 1990) and *Blade Runner* (Scott, 1982), both of which are premised upon the technological implantation of memories, and considers how such narratives intersect with the development of sensual memories and identities through (both cinematic and digital) media use.[29] As Leon Hunt suggests, Neo's downloaded skills endow him with the prosthetic memory of mastering martial arts.[30] As the data enters Neo's brain through the plug in the back of his head, his body shakes and his eyes screw tightly shut. In a few seconds, he jolts awake, gasping as though from strenuous physical exertion. While Neo has not performed such acts in reality, he feels their impacts to his core.

Although he 'knows' Kung Fu before having ever performed it, it is after this data-to-brain training that Neo's abilities are substantiated – and given to the audience's perception – through his virtual combat with Morpheus. This subsequent sequence operates not only as spectacular display, but also to evoke a sense of prosthetic memory in the spectator as we apprehend Neo and Morpheus' kinaesthetic actions. As David Bordwell asserts, Kung-Fu films 'offer us the illusion of mastering the action… the kinetics

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[26] S. Umland and K. Wessel, 'Cassandra Among the Cyborgs, Or, The Silicon Termination Notice' in D. Tofts, A. Jonson and A. Cavallero(eds.), *Prefiguring Cyberculture: An Intellectual History* (Cambridge, MA: MIT Press, 2004), 71.
[27] Ibid.
[28] A. Landsberg, 'Prosthetic Memory: *Total Recall* and *Blade Runner*' in *Cyberspace/Cyberbodies/Cyberpunk*, 175.
[29] Ibid., 190-201.
[30] L. Hunt, "I Know Kung Fu!': The Martial Arts in the Age of Digital Reproduction' in *ScreenPlay: cinema/videogames/interfaces*, 200-201.

have stamped the action's rhythm onto our senses', and 'ask our bodies to recall elemental and universal events like striking, swinging, twisting, leaping, rolling.'[31] What we see and feel in this first Kung Fu sequence jars with Morpheus' rhetoric which punctuates the scene: "You're faster than this. Don't think that you are, know that you are… Let it all go. …Free your mind." In fact, what is visually narrated to us throughout the film is an emphasis on physical affect. The kinaesthetic Kung Fu sequences emphasise how the mutual remediation of mind and body is at the forefront of the film's coalescent diegetic and extra-diegetic meaning. As Merleau-Ponty states, '[w]e cannot imagine how a mind could paint. It is by lending his body to the world that the artist changes the world into paintings.'[32] The carnal visuality of such sequences is paramount; Neo's rebellion is necessarily played out for the audience in highly visceral, physical terms by appealing to the body and mind as both intimately involved in and affected by digital encounters.

For Jason Haslam, however, '[t]he Matrix, like cyberspace, is a site of mental disembodiment, the Cartesian cogito almost completely severed from the body.'[33] Haslam concedes that '[y]es, Neo seems to be fighting for… reembodiment rather than his own transcendent mastery, but he is doing it through his thorough control of and complete existence as the hyper-rational subject.'[34] The reading of Neo as a 'hyper-rational' subject sidelines the fact that what he is fighting against is a hyperbolised Cartesian system, in which humans are subjected to a cognitive illusion of freedom – imprisonment within their minds leads to subjugation, not freedom or control. Conversely, Neo's mastery of the Matrix is not presented as 'mental disembodiment' as much as through a kind of intensified re-embodiment. While Neo is a hacker, we never see him sitting stationary in front of a computer and actually hacking. His 'hacking' of the Matrix is demonstrated instead through mental effort *and* physical exertion – through Kung Fu, acrobatics and other stunts. While his comportment within VR is divorced from his 'real-world' body, it is for the benefit of this body that he fights, with the fundamental awareness that digital embodiment is not perpetual – that he can always be 'unplugged'. The primacy of the material body in *The Matrix* unites narrative and spectacle within the same phenomenological project – to explore how digital encounters may positively transform our embodied relationship to the

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[31] D. Bordwell, *Planet Hong Kong: Popular Cinema and the Art of Entertainment* (Cambridge: Harvard University Press, 2000), 244.
[32] *The Primacy of Perception*, 163.
[33] J. Haslam, 'Coded Discourse: Romancing the (Electronic) Shadow in The Matrix' in *College Literature*, vol. 32, no.3 (Summer 2005), 99.
[34] Ibid., 100.

world, while challenging concepts of the disappearance of the body within totalised mediation.

Haslam is not alone in his conflation of the film's diegetic VR with cyberspace. *The Matrix* has broadly been received as a cinematic translation of the aesthetics and narrative concerns of cyberpunk literature. On *The Matrix*, P. Chad Barnett for example asserts that, 'the corpse-cold body of cyberpunk has been revived by a film that has brought the true feel of that notorious word to the screen for the first time.'[35] He expounds how 'a host of technologies… place real human forms at risk of extinction', and that here 'the flesh is burdensome wetware, exchanges are all symbolic in an electronic land of signs, and reality is virtual at best.'[36] Barnett's description calls to mind one of *Neuromancer*'s most iconic lines: '[t]he body was meat. Case fell into the prison of his own flesh.'[37] However, while protagonist Case does initially attempt to jettison his body for a fleshless virtual 'cyberspace', this ultimately allows him to reconnect with his own embodied self: to be 'reborn' into his own body, 'his own darkness, pulse and blood… behind his eyes and no other's.'[38] An apparent contempt of the flesh is thus ultimately undermined in favour of an affirmation (yet not an unambiguous celebration) of the primacy of embodiment. As Victoria Hollinger argues, despite cyberpunk literature's ostensible decentering of the human body, it is nevertheless ultimately concerned with 'the reinsertion of the human into the reality which its technology is in the process of shaping.'[39] Thus the presumption that cyberpunk, and related SF films, uncritically champion the idea of disembodiment eludes their vital ambivalence. As in *Neuromancer*, *The Matrix* establishes a mind-body dichotomy which performs a variety of functions, but which fundamentally exists to be interrogated and ultimately subverted. While both texts indulge fantasies associated with corporeal transcendence, a focus on this alone misses their progressive erosion of the dichotomies they initially present.

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[35] P. C. Barnett, 'Reviving Cyberpunk: (Re)Constructing the Subject and Mapping Cyberspace in the Wachowski Brothers' Film The Matrix' in *Extrapolation*, vol. 41, no. 4 (2000), 360.
[36] Ibid., 360–361.
[37] *Neuromancer*, 12.
[38] Ibid., 310.
[39] V. Hollinger, 'Cybernetic Deconstructions: Cyberpunk and Postmodernism' in *Mosaic*, vol. 23, no. 2 (Spring 1990), 42.

Cinema and the 'Digital'

As I have begun to establish, *The Matrix*'s coalescent narrative and special effects, alongside its fundamental concern with both technological and non-technological forms of embodied experience, articulate reflexive concerns about cinema itself in the digital age. *The Matrix*'s coalescent diegetic and technical apprehension of digital phenomena reflexively challenges the paradigms of popular cinema through various processes of appropriation, approximation and adoption. Such intermediations are balanced by the film's status as (popular Hollywood) film: its economic, ideological and creative imperatives to affirm the continued cultural relevance of cinema. In the following section, I illuminate some of the formally specific ways in which *The Matrix*, as a work of popular SF cinema, is able to apprehend, appropriate and approximate the digital and digital media use in formally specific ways.

In beginning to interrogate the specifically 'cinematic' framing of its narrative and aesthetics, *The Matrix* bears reading in relation to another work of cyberpunk literature – Neal Stephenson's seminal 1992 novel *Snow Crash* – with which *The Matrix* shares considerable textual similarities. *Snow Crash* similarly posits a world which equates neurological-perceptual experience with computer code, and shares a fundamental preoccupation with the distinction between mind and body. In the novel, a virus may infect an avatar while in cyberspace – which Stephenson names the 'Metaverse' – causing the human brain to 'crash', and the body to die. Similarly, in *The Matrix*, injuries or deaths caused within virtual space are substantiated in the real life body. The protagonist Hiro is, like Neo, a hacker and Kung Fu master, and the novel is similarly focused on physical action.

A significant contrast, however, is that *Snow Crash* – as a work of literature – remains largely removed from digital production processes (word-processing excluded) in spite of its narrative preoccupation with it. Stewart Moulthrop points to the limits of *Snow Crash* as a formally specific reaction to the contemporary digital landscape, arguing that its critique is in fact limited by its basis as traditional printed text. On Stephenson's initial intention to distribute the novel digitally, Moulthrop speculates:

> Suppose that the abortive digital format for *Snow Crash* was not a series of printed panels intended for conventional bound publication, but instead a network of screens linked together by some graphic navigational scheme – in other words, an electronic hypertext. If this were the case, then the change of media, the reversion to the more traditional format of the book, might be very important indeed. It might suggest that *Snow Crash* is in more

> than one sense a defense of the book and its ethos: not just the story, but the *embodiment* of a New Deuteronomy… Whether or not he ever had other notions, Stephenson has taken the more conservative option, which is indeed the preference of the cyberpunk genre as a whole.[40]

Stephenson's novel, while now endlessly reproducible and distributable as an electronic text, is in some ways limited in its embodiment and negotiation of digital technologies by virtue of its format. While *The Matrix*'s narrative is not hypertextual, of course, it is nonetheless able – to a greater extent than a work of printed literature – to technically embody the kinds of digital virtual experience which it diegetically represents. By virtue of its very status as cinema (a media form which has historically adopted and adapted new technologies), and moreover as a film at the forefront of digital imaging innovation, *The Matrix* actually embodies that which it comments on – demonstrating the ontological flexibility of the cinema, the enfolding of narrative and form.

A particularly striking example of this enfolding occurs in Neo's first visit to the Construct, a VR program which the crew use to generate training simulations. The virtual environment first appears as an infinite white room, a blank 'non-space' reminiscent of the green-screen sets on which many of the film's digital special effects were created, and later witnessed *being created* through the film's extensive and well-marketed supplementary content. As Morpheus explains the simulation software that underpins the Matrix, a television appears, out of nowhere: an image of the Matrix – 'our' world – onscreen. Morpheus changes the channel to one which shows "the desert of the real" – a mountainous, barren and uninhabitable computer-generated landscape which, ironically, represents diegetic 'reality' behind the Matrix. Suddenly, the two-dimensional screen transforms into a three-dimensional portal, as a swooping virtual tracking shot plunges through this conspicuously computer generated 3D digital environment. Even diegetically, however, this image is itself *a simulation* – an illustration of the real within a different VR.

With his total control of everything we see – real and virtual – Morpheus appears in this sequence as an allegorical filmmaker. Yet aside from Neo's initial incredulity, the film refuses to entertain any supposition that this imaged 'real' world itself might be a further deception. While the Matrix and the Construct are equally virtual, the film insists that some forms of mediation are more trustworthy than others. This particular form of diegetic mediation is created by an author who Neo – like the spectator – is given to trust.

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[40] S. Moulthrop, 'Deutronomy Comix' (review of *Snow Crash*) in *Postmodern Culture,* vol. 3, no.2 (January 1993) [available at http://www.pomoculture.org/2013/09/25/deuteronomy-comix/, accessed 17/2/2015], no pagination.

Morpheus' diegetic programming of this digital 'set' visualises both the processes and the authorial agency behind its extradiegetic production. As Telotte notes:

> Whenever our films depict or talk about the technological, they also reflexively evoke the forces that make cinema itself possible; and every technological innovation that advances film's narrative possibilities tells a story as well, about the relationship of film – of the industry, of the artists and technicians who work in it, even of the audience – to those forces of technology that surge throughout contemporary culture.[41]

Here, *The Matrix* draws attention to itself *as cinema*, foregrounding its technological and narrative propensity to communicate concepts and experiences associated with other media. Yet Morpheus' actions are also redolent of the archetypical new media user, as he cuts, freezes, splices and remixes imagery to produce a kind of 'X-ray' vision of media's underlying deceptions. What is both diegetically and extradiegetically significant in the Construct scenes is the understanding of illusion, and the attendant phenomenological possibilities afforded to character, spectator, and media user when armed with this knowledge. Morpheus' mediating action gives access to a form of 'truth' or authenticity, while also challenging and disrupting the boundaries of the Matrix – a diegetic system which, with its pretence to perfect seamlessness, allegorises the norms of photorealism, and even Hollywood as an institution. Countering this, the sequence presents an idealised process of mediation, which shares characteristics of both filmmaking and digital media use, and which is mobilised against diegetic and extradiegetic systems of control.

While, of course, the film's directors are firmly embedded in the very media system they technically subvert and diegetically critique, *The Matrix* is presented (and diegetically presents itself) as the Wachowskis' 'rebellious' disruption of Hollywood norms, just as the film's experimental aesthetics disrupt the illusory photorealism of the diegetic Matrix. *The Matrix* at once presents a fantasy of authorial agency (which supports how the film was also sold to audiences through extradiegetic 'making-of' content), and a fantasy of communal involvement (encouraged by many of the film's interactive multimedia extensions). This duality is summed up by the fact that, as Jenkins notes, 'the Wachowskis were more than happy to take credit for whatever meanings the fans located, all the while implying there was more, much more, to be found if the community put its collective mind to work.'[42] On one hand, *The Matrix* appeals to the embodied and cognitive involvement of the spectator, fostering a collective understanding, a democratically transparent recognition of the codes

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[41] J. P. Telotte, 'INTRODUCTION: Film and/as Technology: Assessing a Bargain' in *Journal of Popular Film & Television*, vol. 28, no. 4 (2001), 148.
[42] *Convergence Culture*, 100.

which underpin mediation, a sense of collective 'hacking'. At the same time, the film presents its own images as spectacular, ground-breaking and carefully authored, claiming an authoritative correspondence to increasingly digitally mediated contemporary experience. Maintaining cinema's long-presumed representational function, *The Matrix* claims not only to represent the contemporary world, but to see beyond it, and to foster in its spectator an interrogative relation to the contemporary mediated 'real'.

The ambiguous adoption and disruption of cinematic paradigms is further communicated at diegetic and extradiegetic levels in the film's famous 'bullet-time' sequences. Developed by visual effects supervisor John Gaeta, bullet-time involves the extreme slow-motion presentation of a character in action, as the camera rotates – at a higher speed – up to 360 degrees around them. After its popularisation in *The Matrix*, bullet-time subsequently became commonplace in Hollywood action sequences throughout the 2000s, for instance in *Spider-Man* (Sam Raimi, 2002), *Harry Potter and the Deathly Hallows: Part II* (David Yates, 2010) and *Watchmen* (Zack Snyder, 2009). In post-millennial video games, too, bullet-time was often appropriated as a gameplay mode in action-oriented first-person shooters – for instance 'reflex time' in *FEAR* (2005), and 'helltime' in *Doom 3* (2005).[43]

Bullet-time makes four appearances in *The Matrix*: during the opening sequence in which Trinity battles a gang of police officers, the famous rooftop sequence in which Neo dodges bullets, when Morpheus flees from his interrogation and, finally, in the subway station where Neo battles Agent Smith. In each instance, the bullet time technique illustrates an overlapping of the affective and conceptual, the narrative and the spectacular, the digital and the cinematic. The first bullet-time shot, for instance, is displayed following a tightly choreographed and kinaesthetic fight sequence between Trinity and the police officers. Throughout the sequence, Trinity is repeatedly shot from a low angle, and almost always composed in the right to centre-right of the frame – underlining her adeptness and dominance and aligning the spectator with her point of view and bodily comportment. As the last officer standing attacks, Trinity leaps into the air, hanging suspended in space and time. The action is slowed to such an extent that time appears almost frozen, evoking a comic-book tableau, imbued with depth and dynamism as the camera revolves swiftly around her.

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[43] For a more in-depth exploration of bullet-time's popularisation across diverse media forms, see B. Rehak 'The Migration of Forms: Bullet Time as Microgenre' in *Film Criticism*, vol. 2, no. 31 (2007), 26-48.

Despite the suspension of temporal action, bullet-time does not simply operate as spectacle here, but provides important plot information: alerting us to the fact that there is something highly unusual and special about Trinity's abilities which, at this point, eludes our understanding. Through our cinematographically fostered alignment with her embodied perspective, we are given to understand that this spatiotemporal flux emits from Trinity's point of view, reflecting her subjective phenomenal relationship to her surroundings. This impression is affirmed as time 'restarts,' and Trinity delivers a superhumanly savage kick to the officer's chest, launching him backwards through the air. From out of extreme slowness, the impact of this temporal re-acceleration appears not as the restoration of 'natural' duration, but as almost impossibly fast. In amplifying the impact of time, this digital effect here produces an enhanced, affective identification with Trinity's embodied empowerment as she augments the force of her kick.

As Purse notes, digital special effects sequences such as these 'can dramatise power relations forcefully, articulating fantasies of empowerment in which the mastery of the visible offered by the sequence metaphorically correlates to the physical mastery or dramatic disempowerment of the protagonist.'[44] While pre-digital spectacular sequences 'already offered a sensory identification with the cinematic body's trials and transformations that communicated character development and action corporeally', the difference lies 'not in their underlying impulse, but in the expanded scale and dynamism of the imagery that the imagined technologies make possible.'[45] Assuming the digitally enabled image within a fundamentally cinematic *narrative* framework, the bullet time effect plays a key role in *The Matrix*'s thematic and aesthetic enhancement of affect through the manipulation of spatiotemporal experience.

The technical process behind bullet-time constitutes one of *The Matrix*'s most striking formal hybridisations of indexical-cinematic and digital filmmaking techniques. Bullet-time photography replaces the traditional camera set-up with a circular or semi-circular arrangement of 120 still cameras, as well as two digitally-controlled motion cameras. The result is a series of thousands of static indexical images which, in post-production, are digitally interpolated to fill in the gaps between each photographic frame. This produces the illusion that a camera is moving continuously, 360 degrees around its object. As Sean Cubitt elucidates:

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[44] *Digital Imaging in Popular Cinema*, 22.
[45] Ibid.

> Given two successive frames, the computer can be instructed to interpolate a third by averaging the differences between the initial two, thus extending the action and providing virtual slow-motion… Although this resembles step-printing, the traditional method for extending action in the optical printer, the difference is that the new frame has never actually been exposed in a camera. It is instead a digital artefact.[46]

While the resulting frames are computer generated, however, this process of digital interpolation fundamentally requires a series of indexical images in order to generate itself. The resultant digital frames are causally linked to and continuous with the profilmic. The technique shatters the spatiotemporal constraints of a traditional camera set-up via an instrumental digital process, a prosthetic technology which extends cinematic function, allowing for what appears to be a perceptual *enhancement* of the referent. The process harks back to the early motion experiments of Eadweard Muybridge, evoking the idea that slow motion photography can provide a more detailed, perceptible and implicitly 'trustworthy' replication of phenomena. What is finally printed back onto celluloid ultimately presents itself as an enhanced *cinematic* image: a representation of the profilmic object which works to augment our perceptual apprehension of it.

Moreover, it is the representation of the human performer – not the digitally imaged environment – which forms the focal point of the bullet-time image. While at the production level, Gaeta informs us, the bullet time shot "begins with a [background] simulation",[47] the eye is drawn instead to the (photographically) captured character in action – who is always placed centre frame. In each bullet-time sequence, it is Trinity, Morpheus or Neo with whom we affectively identify, engaging with their kinaesthetic corporeality, and sharing in their empowerment. As Purse notes:

> If *The Matrix* is thematically concerned with millennial anxieties about a loss of control in the context of processes of mediation, commodification, and technologisation, then bullet-time functions to reassure the spectator that he or she can still occupy a position of wholeness, of mastery.[48]

Concurrently, bullet-time also enacts a reflexively cinematic mastery – the employment of a digital technique in ways which assuage the sense of indexical loss associated with it. Unlike in early VR films such as *Tron* and *The Lawnmower Man*, *The Matrix*'s production of perceptual realism, of visual continuity between the digital effect and the surrounding cinematic image, operates to blur the perceptible boundaries between digital and

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[46] S. Cubitt, 'Digital Filming and Special Effects' in D Harries (ed.), *The New Media Book* (London: British Film Institute, 2002), 24.
[47] 'What is Bullet-Time?' on *The Matrix* (DVD 1999), 01:07.
[48] *Contemporary Action Cinema*, 15.

photographic processes and images, despite the radical ontological difference which the digital image may ostensibly represent.

The climax of *The Matrix* in particular works to thematise and display the reflexive self-transformation of cinema through, and in relation to, the digital. After Neo and Trinity have rescued Morpheus from the Agents, Neo is shot dead by agent Smith. He manages to cheat death, however, as 'Trinity plays prince to Neo's sleeping beauty, bringing him back with a kiss.'[49] This moment foregrounds the centrality of embodied perception in mediated experience. Neo's disavowal of death is contingent upon a return to the (real) body. While other characters die in the matrix – their minds trapped, helpless, within the simulation – Neo is able to escape this Cartesian prison: to 're-embody' his consciousness in response to Trinity's kiss. This inversion of the 'prince charming' myth also stands as a metaphor for cinema's digital transubstantiation – through which it transformatively embodies, yet ultimately contains, narrative-aesthetic modalities of the digital.

The spectacular sequence which follows affectively communicates both Neo's and the film's transformative mastery of digital space. After Neo re-enters the matrix, a POV shot shows the silhouettes of the hallway and agents rendered in code. Rather than reducing experience to data, this visualisation foregrounds the digital's affective potentiality – its latency as image and as experience. As Don Ihde notes, 'the cascades of data displayed are the flip side of the Kung Fu flights… [T]his imaging pattern has become part of our visual experience, within our lifeworld.'[50] By foregrounding the reversibility of digital code and image, *The Matrix* engenders both a suspension of disbelief and a reflexive unveiling of illusion, to the end that both Neo and the film are given to an unprecedented disregard for quotidian physical laws. Neo takes a running leap, launching himself headlong into the body of Agent Smith; the latter's body swells and distorts before exploding into shards, leaving Neo standing in his place. Since the Agents are now both technically and diegetically no more than digital beings composed of code, they are open to both Neo's and the film's manipulation. After the explosion, the environment bends around Neo's body – the walls seem to breathe in time with him, heaving and swelling with his effort. Neo's ultimate mastery of the matrix is performed and undergirded through a momentary formal plasticity, a reshaping of cinematic space. In this moment, both film and Neo triumphantly surpass their former limitations as digital code is assumed and assimilated as an extension of their respective bodies.

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[49] *Contemporary Action Cinema*, 16.
[50] D. Ihde, 'Technofantasies and Embodiment in *The Matrix*' in M. Diocaretz and S. Herbrechter (eds.), *The Matrix in Theory* (Amsterdam; New York: Rodopi, 2006), 165.

This moment undergirds how spectacular and narrative operations of the diegetic world are contingent upon both Neo's embodied protagonistic action and the reflexive perceptual action of the film itself. *The Matrix*'s cutting-edge, fast-paced and often assaultive special effects are crucially both affective and *affected*. As Angela Ndalianis observes:

> Here's a film that's dictated above all by the speed of the image: within the filmic space (with its economically ordered narrative and fast paced action); within the production space (with its special effects and high velocity stylistic techniques); and within the audience's space (in the capacity the film has in affecting us on a highly charged sensory level).[51]

Indeed, *The Matrix* creates an intense correlation between the diegetic space, production space and the audience space which extends beyond its visceral temporal velocity. Neo's mastery of his new-found embodiment is mirrored in the film's own embodiment, appropriation and ultimate containment of the digital image. Just as Neo's actions are engendered, expanded and limited within the diegetic Matrix, the perceptual actions of film and spectator are expanded and shaped by the possibilities afforded by digital techniques. Neo's progressive awareness of the contingencies of mediated experience produces a parallel extradiegetic awareness in the spectator – as knowingly visible processes of production are reflexively reconciled with cinematic narrative.

Conclusion

As this analysis has suggested, narrative and spectacle, body and mind, the cinematic and the digital, operate as diegetically and extradiegetically continuous in *The Matrix*. As I have demonstrated, *The Matrix* is not simply about the digital, but about the past and future of cinema itself. The film both evokes and enacts the impetus for the popular cinema to refigure its narrative and aesthetic paradigms in relation to digital media and images. Like *Tron* and *The Lawnmower Man*, *The Matrix* reflexively indulges kinaesthetic fantasies which play upon the hyperbolic freedom associated with the internet and the interactivity promised by games, exceeding their contemporary graphical limitations and diegetically transcending the bounds of their material interfaces. On the other hand, my reading of *The Matrix* in relation to literary precursors also highlights how, despite its contemporaneous feel, the film draws from a much older tradition of embodied technofantasy. As Ihde notes,

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[51] 'The Frenzy of the Visible'.

The Matrix is redolent of 'a very ancient set of human imaginations… which combine embodiment fantasies with some form of materiality, frequently technological materialities':[52]

> Technofantasies include many sorts of desires… relating to technologies which will give us powers usually beyond our bodily, sensory, sexual, intellectual, or for that matter any or all dimensions of human embodiment. But while we imagine technologies which could do this, we also want them to be transparent, without effort, enacted with ease, as if our enhancements were part of a well trained "sports body." [53]

The Matrix assumes and refigures this enduring type of fantasy; its depictions of digitally augmented VR feats indulge dreams of hyper-transparent techno-liberation while overtly alluding, diegetically and aesthetically, to the kinds of digital and cinematic mechanisms which underpin them. As Neo's actions fluctuate between effort and ease, the improbable and the impossible, the film's visual effects present a parallel duality between overt visibility and seamless transparency. Through aesthetics and narrative, the film ambiguously rejects and sustains various forms of illusion – evoking both the impossible fantasy of effortless action, and the primacy of the body and its material limitations. Such fantasies, in which media's claims to reality and possibility are variously ruptured and upheld, are far older and more multifaceted than digital technologies themselves.

Yet *The Matrix*'s particular figuration of VR is contingent upon and redolent of its contemporary moment in the history of the digital in cinema. Despite the fact that digital effects had been used in popular film for decades, Rogers points out, 'the concept of digital cinema that emerged in the ramp-up to the new millennium referred to a cinema not just made spectacular by the new technologies but dominated by them.'[54] In this context, *The Matrix* reflexively testifies to its own status as mediation in order to affirm cinema's ability to reflect and extend our phenomenal experience of the contemporary world. The film's aesthetic and narrative operations communicate a reality, and a cinematic regime, increasingly characterised by temporal acceleration, spatial dislocation and ontological ambiguity. Thus *The Matrix* bespeaks an impetus to represent, and moreover to resituate what we, as spectators, consider representative of 'reality', 'authenticity' and indeed, narrative proper. Refiguring 'authentic' cinematic experience through the diegetic and the mimetic, *The Matrix* both narrates and enacts a digital reformulation of everyday experience, restating cinema's claim to produce an experience commensurate with it.

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[52] 'Technofantasies and Embodiment in *The Matrix*', 160.
[53] Ibid., 162.
[54] '"You Don't So Much Watch It As Download It"', 221.

The Matrix's reflexive deconstruction of illusion works to promote certain ways of interfacing with the digital – as technologies, images and narratives – advocating their creative potential while asserting their ultimate disconnectedness from the embodied, material 'real'. As Ihde observes, *The Matrix* suggests that

> we do not need technofantasy to be technologically embodied; we need, instead, to develop the skills and imaginations to be creative through our technologies. Neo needs to "unplug" not to rid himself of technologies, but to remove the illusion that he cannot tell when he is or is not entering a theatre.[55]

Through the questioning of media simulation and the revealing of illusion, *The Matrix* alludes to the value of technology when used in ways which positively impact upon the (demarcated) 'real'. While the film initially casts doubt on the nature of reality, it retains a sense that mediation, while pervasive, is not absolute – and that true authenticity depends, to a still-significant degree, upon the ontological nature of that which is experienced. In common with other VR films – indeed, as an inherent subgeneric convention – *The Matrix* maintains an ontological distinction between physical 'reality' and illusory space, despite the dialogic relation between them. *The Matrix* ultimately reads as a contemporaneously situated response to *fin-de-siecle* concerns surrounding technologized space – its propensity for deceptive illusionism and the (contemporaneous) need to access a still-sacred real behind the illusory curtain of mediation.

[55] Ibid., 166.

Chapter Five

Avatar: Special Effects and the Hollywood 'Postdigital'

A decade after the release of *The Matrix* heralded the peak of the VR subgenre (and preceded its decline), Hollywood cinema began to revisit many of its characteristic themes and concerns. In this chapter, I read *Avatar* (2009) as an example of what I call the 'Post-VR' subgenre, examining both its similarities to Hollywood VR cinema and its crucial developmental divergences from it. Jon Dovey and Helena Kennedy's 2006 book, *Game Cultures*, provides a glossary entry which summarises VR, at a post-millennial moment, as fictional, outmoded, and unrealised except for in rudimentary forms:

> **Virtual Reality**: a historically overdetermined idea that consists in three overlapping kinds of discourse; that surrounding the rarely manufactured technologies of headset and data glove interface; the idea that cyberspace, the space of communications, is virtual; finally, the idea that fantasy and the future itself is also virtual. Currently an idea often applied to the 'virtual' worlds of online gaming insofar as they are both very immersive and very communicative as well as being dramatic fantasy spaces.[1]

Such a definition suggests that, by 2006, VR had been familiarised to such a degree that it no longer denoted a sense of futurity (or even presence) but of pastness. They classify VR as 'historically overdetermined' and consequently nebulous – tied to bulky prosthetic technologies, or to vague concepts of totally disembodied experience. VR as a subgenre and as a broader cultural mythology is reliant upon distinctions between real and virtual, body and mind. Regardless of the extent to which these categories are challenged, cinematic VR nevertheless evinces contemporary fixations on the impetus, or the inability, to discern one from the other. Post-VR cinema evinces a continuation of the VR subgenre's pleasures and preoccupations while refracting crucial cultural shifts. In times of rapidly proliferating digital mediations such as mobile internet, ebooks and gaming technologies, films such as *Avatar* (and *Source Code*) testify to the outmodedness of 'the virtual' as independent of reality, given the extent to which media engagements have become more intrinsically embodied, and integrated as *real*, everyday experience.

Avatar follows Jake, a paraplegic marine who travels to a distant planet called Pandora, where a scientific-military operation seeks to strip the planet of its natural resource ('unobtainium') to mitigate a catastrophic fuel shortage on Earth. In order to

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[1] J. Dovey and H. W. Kennedy, *Game Cultures* (Maidenhead: Open University Press, 2006), 149.

breathe the planet's air, the team of scientists must inhabit fully controllable, genetically engineered versions of the indigenous population, the Na'vi. Jake has been selected for the mission on the basis that one of the original scientists happened to be his recently deceased identical twin, whose cloned Na'vi body – or 'avatar' – offers a perfect genetic match. On Pandora, Jake assumes his avatar form and meets a Na'vi native, Neytiri, who educates him in the ways of the planet and its people.

Both in terms of narrative – in which digital technologies allow for the inhabitation of an 'othered' space – and in terms of its innovative use of special effects technologies, *Avatar* bears striking resemblances to VR films such as *Tron*, *The Lawnmower Man* and *The Matrix*. *Avatar* develops the concerns of the VR film by further eroding dichotomies between narrative and spectacle, body and mind, nature and technology, material and digital, cinema and new media and, crucially, real and virtual. A key characteristic of *Avatar* – and of the Post-VR film more broadly – is that it not only transgresses, but shatters the real-virtual divide. While the VR subgenre presents virtual spaces which exist independently of material reality, *Avatar*'s planet Pandora is a living, breathing, material space. Nevertheless, Pandora is presented as strikingly reminiscent of a virtual world. Rendered in such fantastical digital imagery, it is easy to forget that what we are seeing is, diegetically, a 'real' planet. In the Post-VR context, *Avatar*'s aesthetic and thematic evocations of VR cinema establish this initial impression of virtuality. As a result, I argue, the film's task becomes to convince us of the diegetic reality and significance of Pandora as a phenomenal space, by repeatedly asserting continuity and parity between mediated perception and the lived world.

Avatar as Postdigital Cinema

Avatar's provocative diffusion of the ontological ambiguities surrounding VR deeply resonates with discourse on the 'postdigital'. In explaining the postdigital, Florian Cramer invokes a widespread cultural sense that everyday digital technologies are, and have in fact have always been, hybrid digital-analogue systems: that '[m]ost 'digital media' devices are in fact analogue-to-digital-to-analogue converters.' Consequently, he suggests 'there is no such thing as digital media, only digital or digitized information' which must be reconstituted into an analogue form in order that it can be experienced.[2] As Cramer notes, the postdigital

[2] F. Cramer, 'What is 'Post-digital?'' in D. Berry and M. Dieter (eds.), *Postdigital Aesthetics: Art, Computation and Design* (Baskingstoke: Palgrave MacMillan, 2015), 23.

is often articulated through a conscious rejection of new media and its ostensible superiority. On using a mechanical typewriter rather than a mobile computing device, he asserts that, in 2013, this is 'no longer a sign of being old-fashioned'.[3] Rather, it signifies 'a deliberate choice of renouncing electronic technology, thereby calling into question the common assumption that computers… represent obvious technological progress and therefore constitute a logical upgrade from any older media technology.'[4]

A postdigital rejection of (and boredom with) material, ontological and evaluative distinctions between the analogue and the digital is made manifest in diverse cultural forms. Melvin Alexenberg describes the postdigital as

> of or pertaining to artforms that address the humanization of digital technologies through interplay between digital, biological cultural and spiritual systems, between cyberspace and real space, between embodied media and mixed reality in social and physical communication, between high tech and high touch experiences, between visual, haptic, auditory, and kinaesthetic media experiences, between virtual and augmented reality.[5]

While Alexenberg uses the term in reference to contemporary art practice, concurrent characteristics are also evident in contemporary popular cinema – in Post-VR cinema in particular. The 'postdigital' here can be considered a reaction to, or reflection of, a state in which the disruption brought on by digital information technology has already occurred, and in which digital technologies have been subsumed into lived experience to the extent that the ontological compartmentalisation of such experiences no longer seems to make sense.

Released in 2009, *Avatar* precedes most discursively identified cultural manifestations of the postdigital. Moreover, *Avatar* ostensibly contrasts with postdigital cultural representations in its sustained preoccupation with the radical novelty and technological 'progress' that its special effects represent. Beneath the surface, however, *Avatar* reads as a reflexive comment on how (no longer new) digital media has inflected cinema and everyday life to such a degree that it can no longer be considered antithetical to the (experiential) 'real' that cinema has historically striven to represent. As Caroline Bassett notes, 'the postdigital asserts that computational technology… has broken out of the confines that divided it, as new media, from other media technologies, and has now come

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[3] Cramer points out that the mechanical typewriter is itself a digital writing system. See Ibid., 12.
[4] Ibid., 12-13.
[5] M. L. Alexenberg, *The Future of Art in a Postdigital Age: From Hellenistic to Hebraic Consciousness* (Bristol: Intellect Books, 2011), 35.

to saturate the everyday environment.'[6] In this context, *Avatar* reflects the outmodedness of VR as a cultural concept, in response to the naturalisation (and banality) of digital technologies in the twenty-first century, which grow more clearly antithetical to the 'immaterial' virtual experiences imagined in VR cinema and other fiction. Through the interplay of narrative and spectacle, *Avatar* challenges and overcomes the distinction between real and virtual. It emphasises and hyperbolises the ubiquity of digital mediation, gesturing to a postdigital boredom with distinctions between real and virtual, and between old and new media, through a radical rejection of such categories. Its particular form of post-digitality is formally and subgenerically specific in that it mobilises overt technological spectacle, but uses narrative to strip its diegesis of the quotidian – and its rules – by representing a fantastical yet ontologically 'real' world.

This chapter explores how *Avatar*'s narrative both supports and interacts with its use of new technologies, engendering a reading of the film in relation to digitally mediated experience in the contemporary world. Reinforced by the use of the very latest digital imaging technologies, *Avatar* continues the VR subgenre's propensity to assert the perpetual pleasures and continued cultural relevance of cinema, thematising the embodied relations it produces between character, viewer and (usually digital) technologies. The following discussion is framed around two of *Avatar*'s most notably innovative imaging techniques: 3D and motion capture. Within these categories, I also address the film's refiguration of the motifs of 'seeing' and the 'avatar', through which it addresses the spectator as engaged in an embodied rather than purely (audio)visual relation to the cinematic experience. Finally, I elaborate on how extradiegetic technologies work alongside the film's ambiguous diegetic representation of 'technology' within its Post-VR narrative.

3D

Avatar was released to a mixed critical reception, and acclaim was most often centred on its innovative special effects – and most notably on its use of the latest generation 3D. Scott Mendelson, for instance, calls *Avatar* 'a staggering achievement in visual effects and 3D technology.'[7] For Andrew Leonard, *Avatar* 'is a film that people want to see, because, quite simply, the 3D special effects used to create the astonishingly beautiful alien world of

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[6] C. Bassett, 'Not Now?: Feminism, Technology, Postdigital' in *Postdigital Aesthetics*, 136.
[7] S. Mendelson, 'Huff Post Review: Avatar: The 3D IMAX Experience' on Huffingtonpost.com (03/18/2010) [available at http://www.huffingtonpost.com/scott-mendelson/huff-post-review--avatar_b_392885.html, accessed 10/06/2015].

Pandora are, ahem, out of this world."[8] With a nod to the narrative embedded in an allusion to 3D's immersive potential, Manohla Dargis enthuses that *Avatar* 'shows us a future in which movies will invite us further into them and perhaps even allow us to choose not just the hero's journey through the story, but also our own.'[9] Hype was matched by box office success: the film grossed over $2.74 billion worldwide.[10] *Avatar* in itself probably played a significant role in the quickening of stereoscopic cinema. As Purse points out, its high-profile release generated a significant increase in the number of US digital and 3D screen conversions.[11] The critical and commercial success of 3D was affirmed in the 2009 Academy Awards – in which *Avatar* and *Up* (Docter & Peterson, 2009) became the first stereoscopic films ever to be nominated for Best Picture.

It seems unsurprising that one of the breakthrough 3D films takes up and develops the aesthetic and narrative tendencies of the VR subgenre, and is similarly characterised by an impetus to assert cinema as an engaging and innovative medium. Barbara Klinger notes that 'exhibitors regard 3D as a technology that can 'upsell' movie-going… by defining theaters as destinations for heightened sensory experiences.'[12] Indeed, 3D enacts an impetus to bring film experience back to the cinema, inverting the trend toward contemporary online DVD rental services such as (the now defunct) LoveFilm and on-demand streaming services such as Netflix, as well the popularisation of ever-smaller, more multiple, and more 'embodied' screens in the form of tablets, iPods and smartphones. Like many contemporary Hollywood films, *Avatar*'s considerable 162 minute runtime bucks the contemporary trend for 'snippet' media on such platforms as YouTube, Vine and Twitter. Dean Simonton cites research positively correlating film length with critical acclaim, awards nominations and higher box-office takings, while audiences largely report a preference for longer films.[13] Simonton speculates that the latter may be because audiences 'feel that they get more for the price of the ticket.'[14] In the case of 3D cinema, longer runtimes may seem to somewhat offset the greater cost of 3D cinema tickets and the requisite stereoscopic glasses. Thus *Avatar*'s 3D format and considerable runtime bespeak a cultural and

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[8] A. Leonard, 'What the News Biz Can Learn from 'Avatar'' in *Salon* (04/01/2010) [available at http://www.salon.com/2010/01/04/learning_from_avatar/, accessed 10/06/2015].
[9] M. Dargis, 'Floating in the Digital Experience' in *New York Times* (03/01/2010) [available at http://www.dailycomet.com/article/20100104/ENTERTAINMENT/912319978?Title=Floating-in-the-digital-experience, accessed 10/06/2015].
[10] See '*Avatar*' on Imdb.com [available at http://www.imdb.com/title/tt0499549/, accessed 28/05/2015].
[11] *Digital Imaging in Popular Cinema*, 129-130.
[12] B. Klinger, 'Three-dimensional Cinema: The New Normal' in *Convergence*, vol. 19, no. 4 (November 2013), 424.
[13] D. K. Simonton, *Great Flicks: Scientific Studies of Cinematic Creativity and Aesthetics* (New York: Oxford University Press, 2011), 86-87.
[14] Ibid., 86.

commercial impetus to diverge and differentiate from everyday digital moving image media. Simultaneously, however, the aesthetic and narrative impacts of its use of 3D show a considerable degree of engagement with digital culture and its modalities, addressing its spectator as a digitally literate, embodied participant in the increasingly digitally mediated everyday.

Perhaps one of the most recognisable and widely discussed elements of 3D cinema is the use of parallax photography. Positive parallax, or the extension of depth planes away from the audience, and negative parallax, or the emergence of the image outwards from the screen, have often been considered to engender, respectively, a sense of depth and immersion versus a sense of disruption and shock. Earlier generations of 3D, such as Hayes 3D films, tended to capitalise on the assaultive value of negative parallax. 3D came to be associated with horror and exploitation – with titles ranging from the banal to the audaciously inelegant, such as *Bwana Devil* (Oboler, 1952), *It Came from Outer Space* (Arnold, 1953), *Robot Monster* (Tucker, 1953), *Creature from the Black Lagoon* (Arnold, 1954), *Cat-Women of the Moon* (Hilton, 1954), and *Gorilla at Large* (Jones, 1954). 3D's less than refined reputation survived into later revival periods of the 1970s and '80s, through titles such as the X-rated sexploitation film *The Stewardesses* (Silliman Jr, 1970), Andy Warhol's *Frankenstein* (1974), *Dogs of Hell* (Keeter, 1982) and *Amityvillle 3-D* (Fleischer, 1983). Such titles, which tended to exploit the 'shock' value of negative parallax, are widely considered to have contributed to the failure of 3D cinema to cross over to legitimacy. For John Belton, this is no less the case with contemporary 3D, in which he believes, the 'intrusive' effect of negative parallax still prevents 3D film from being normalised.[15]

Unsurprisingly given 3D's history, negative parallax is more sparingly used in digital-era 3D films. With the exception of such titles as *My Bloody Valentine* (Lussier, 2009), which seem to capitalise on the kitsch nostalgia of the effect, negative parallax is often avoided by filmmakers and derided by critics for its potentially disruptive effects. As Barbara Kilnger notes:

> Whether considering past or current excesses in uses of 3D's 'outer' dimension, some filmmakers and critics (e.g. James Cameron and Roger Ebert, respectively) regard negative parallax as the technique that both confirms 3D's gimmickry and denies its full artistic expression and acceptance.[16]

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[15] J. Belton, 'Digital 3D Cinema: Digital Cinema's Missing Novelty Phase' in *Film History: An International Journal*, vol. 24, no. 2 (2012), 194.
[16] 'Three-dimensional Cinema', 425.

Ostensibly, the shunning or severely limiting of negative parallax use belies a concerted avoidance of gimmickry, testifying to the importance of existing paradigms of immersion, storytelling and aesthetic continuity in 'serious' Hollywood film. In keeping with this convention, *Avatar* spends much more time extending depth planes away from the viewer than allowing images to intrude into the viewing space. However, negative parallax is not wholly absent in *Avatar*, albeit employed in far subtler ways than in earlier generation 3D cinema, to augment engagement and identification in narrative context.

An ostensibly disruptive technique, negative parallax has often been overlooked in terms of its potential narrative effect. As Klinger points out, '[w]hile scholarship on 3D acknowledges continuity with 2D visual devices, few scholars analyze negative parallax as serving story or generic functions.'[17] As with Belton, above, this is often related to how negative parallax draws attention to the technology itself. For Philip Sandifer, the act of images extending into the theatre 'makes the film more incongruous, more something that is stared at, reinforcing the aesthetic of astonishment' rather than engendering narrative absorption.[18] Similarly, for William Paul, 3D is 'a technology that constantly foregrounds itself.'[19] This, he argues, is largely due to its tendency to display negative parallax: since 'paradoxically, moving beyond the frame demands some notion that there is a frame to move beyond: emergence depends on a sense of violation for its effect.'[20]

Yet this foregrounding of technology may be easily overstated in its 'disruptive' effects. In the hypermediated present, moreover, it does not seem an unrealistic assumption that audiences are largely unfazed by the apprehension of the frame. In an age of multifarious mediation, of intensified intertextuality and convergence, the digitally literate spectator can expect regular 'intrusions' from the extradiegetic world, including technologies: a function of the collapse of the wall between 'virtual' and 'real' spheres. Like the VR subgenre before it, moreover, *Avatar* is film in which spectacular, narrative, diegetic and extradiegetic elements variously overlap, mirror and approximate each other, and challenge paradigmatic assumptions about what constitutes 'narrative' itself. In this context the foregrounding of the frame – and thus the technology which enables the film – is not necessarily an effect which detracts from *Avatar*'s diegetic world.

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[17] Ibid., 426.
[18] P. Sandifer, 'Out of the Screen and into the Theater: 3-D Film as Demo' in *Cinema Journal*, vol. 50, no. 3 (Spring 2011), 73.
[19] W. Paul, 'Breaking the Fourth Wall: 'Belascoism', Modernism, and a 3-D "Kiss Me Kate"' in *Film History*, vol. 16, no. 3 (2004), 229.
[20] W. Paul, 'The Aesthetics of Emergence' in *Film History*, vol. 5, no. 3 (1993), 333.

As an example of how this works, I turn to one of *Avatar*'s most iconic scenes, in which negative parallax is used to augment tactile engagement *and* narrative identification interdependently. Jake has recently met Neytiri, who up to this point questions his ability to learn the ways of the planet and its inhabitants. As they journey through the forest, a cluster of floating bioluminescent beings – which resemble airborne seeds – surround and then settle on Jake. In this moment, the planet has responded to and accepted Jake's presence – to the initial disbelief of Neytiri. Miriam Ross acknowledges the narrative function of this scene, but ultimately subordinates this to the impact of its negative parallax presentation.

> If one buys into the divine quality of *Avatar*'s world, this is the moment at which the spectator is expected to connect with it spiritually. Yet regardless of our engagement with the narrative, the luminescent seeds have a tactile quality in their movement between different spaces that bridges and draws attention to the spatial configurations between the auditorium and the film's diegesis. [21]

As the tree spirits descend on Jake, they appear to traverse material and immaterial space in such a way that they no longer appear solid, but transparent and ephemeral; they are not simply of the screen space, nor of extradiegetic material space, but of somewhere in between. The aesthetic quality of negative parallax here constructs an equivalence between the digital and the material, through a sense of mutual spatial continuity.

While Ross asserts the impact of this effect regardless of narrative immersion, narrative context certainly augments, and is augmented by, the affective operations of the image. As they land on Jake, the spirits appear to him, and to us, as both here and there, material and immaterial. Their condition mirrors Jake's own – for while he is consciously embodied in his avatar (in a world which first appears 'virtual'), his human form lies in a chamber in the space station. The tree spirits signify a moment of realisation for Jake, in which he first apprehends that their liminal existence is as 'real' as his own. By concurrently drawing attention to the image as projection, and to the spatial configurations between auditorium and diegesis, the scene constructs an additional equivalence between Jake's realisation and our own – that spectacular, otherworldly and ostensibly 'virtual' phenomena have a real and profound significance. Here again *Avatar* resonates with a broader amalgamation of real and virtual, which it articulates both *in* and *as* cinema through its specific and self-reflexive narrative employment of spectacle.

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[21] M. Ross, 'The 3D aesthetic: *Avatar* and hyperhaptic visuality' in *Screen*, vol. 53, no. 4 (Winter 2012), 391.

While positive parallax is far more prevalent in *Avatar*, its use is no less spectacular, reflexive and narratively functional than the film's negative parallax shots. Though less commonly derided than its counterpart, positive parallax is itself not exempt from being considered anti-narrative. Brown for example suggests that the positive-parallax revelation of the Hallelujah Mountains – a cluster of gargantuan floating land-masses – foregrounds the 'constructed nature of the Pandoran environment.' While Brown argues that the scene's visual magnificence does not diminish *perceptual* immersion, it breaks *narrative* immersion specifically; we 'are not only forced momentarily to forget the film's story, but we are also reminded – forcibly – that we are watching a film'.[22] For Brown,

> spectacular 'interruptions' into the narrative… allow us precisely to view the fine level of detail that has gone into *Avatar*, whose setting might in numerous other films have simply been a painted backdrop consisting of a low level of detail. In other words, if heightened perceptual immersion, during spectacular moments, compromises narrative immersion, by interrupting the narrative, both nonetheless work towards the common goal of immersion.[23]

While Brown accepts that narrative works *alongside* spectacle, his assertion that they produce *inverse* forms of immersion is problematic in relation to *Avatar*, precluding the imbrication of the narrative and the perceptual. The revelation of the Hallelujah Mountains is an undeniably spectacular sight, yet in the context of a film replete with sprawling aerial shots of bioluminescent forests, prolonged battle sequences with computer-generated Pandoran beasts and extended aerial flights on the backs of dragons – all using positive parallax – it is worth questioning whether *each one* is likely to be experienced as narratively disruptive. As Pierson asks, 'what counts as a special effect in a film in which nearly every shot is an effects shot?'[24] Like most contemporary Hollywood blockbusters, *Avatar* brims with spectacular sequences and yet remains both diegetically coherent and narratively immersive. To polarise narrative and spectacular (or perceptual) immersion moreover precludes the extradiegetic functions of narrative which – as I have argued in previous chapters – is particularly problematic in relation to VR and Post-VR cinema.

A similar perspective undergirds Carter Moulton's characterisation of positive and negative parallax as respectively producing an 'inward aesthetic' – which 'brings elements of

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[22] W. Brown, 'Avatar: Stereoscopic Cinema, Gaseous Perception and Darkness' in *Animation*, vol. 7, no. 3 (November 2012), 263.
[23] Ibid.
[24] M. Pierson, *Special Effects: Still in Search of Wonder* (New York: Columbia University Press, 2012), 152.

the diegesis into *our* world' – and an 'outward aesthetic', which pulls us into the filmic world.[25]

> A potent outward aesthetic posits a spectator of attractions, a viewer whose adrenaline surges from the thought of filmic objects crashing into the theater or protruding from the screen. The inward aesthetic seems to work toward diegetic absorption by extending the back wall of the theater, but it too has been made a vehicle for the attraction.[26]

Again, this assumes that attraction does not (and cannot) engender diegetic absorption. Brown and Moulton's perspectives seem to imagine a viewer whose narrative engagement depends upon a rarefied disappearance into the diegetic world, one who 'forgets' that they are watching a film, and that this is the ideal state for the apprehension of narrative meaning. I contend that a digitally literate contemporary spectator may remain narratively engaged not despite, but because of, a film's reflexive connection to the multimediated extradiegetic world.

The age-old tension between total absorption and reflection, which has characterised discussions of cinema from Metz to Mulvey,[27] here emerges as still relevant to discourse on the latest 3D. While Moulton evokes the spectator of Tom Gunning's 'cinema of attraction'[28], there is, quite simply, a very different sociocultural context underpinning the spectacular-narrative experience of the contemporary viewer – as I have also argued in relation to *Tron*. Through its sustained (and often allegorical) allusions to contemporary lived experience, *Avatar* in particular resists such a reading. Jake and the spectator are mutually inaugurated into new states of technological being – Jake through his avatar and the spectator through innovative special effects technologies. For 3D audiences in particular, the very act of putting on the stereoscopic glasses, and promptly accepting their presence, augments our identification with Jake. We too need to assume a technological filter in order to be among the Na'vi, but like him, we quickly accept this degree of mediation. Thus, to immerse through spectacle – to 'bridge elements of the diegesis into our world' – and to immerse through narrative – to 'pull us into the filmic world' – are not, certainly in the case of *Avatar*, mutually exclusive actions.

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[25] C. Moulton, 'The Future is a Fairground: Attraction and Absorption in 3D Cinema' in *CineAction*, vol. 89 (January 2012), 6.
[26] Ibid., 13.
[27] C. Metz, (C. Britton, A. Williams, B. Brewster and A. Guzzetti trans.) *The Imaginary Signifier: Psychoanalysis and the Cinema* (Bloomington: Indiana University Press, 1982); *Visual Pleasure and Narrative Cinema*.
[28] See T. Gunning, 'The Cinema of Attraction: Early Film, Its Spectator and the Avant-Garde' in *Wide Angle*, vol. 8, nos. 3-4, (Autumn 1986), 63-70.

3D and Vision

The interdependence of narrative and 3D is also intrinsic to *Avatar*'s motif of vision. References to eyes and seeing abound – images of large, luminous Na'vi eyes grace promotional material, and shots of the eye form the focal point of several of the film's most significant images: in particular the final shot – an extreme close up of Jake's eyes as he awakens, permanently re-embodied in his Na'vi form.[29] But in *Avatar*, this motif connotes not only ocular vision itself. For the Na'vi, the concept of 'seeing' has far broader connotations. The often used phrase, *Oel ngati kame*, is subtitled as 'I see you', but in context appears to signify something closer to 'I understand you.' As Neytiri explains to Jake, "When you see nothing, you will See everything."[30] 'Seeing' is also refigured as a form of networked intersubjectivity which resists the notion that mediation transcends, or at least partially bypasses, embodiment. As lead scientist Dr Grace Augustine puts it, the Na'vi "see a network of energy that flows through all living things."

This and other uses of the motif produce an alterity between human and Na'vi conceptualisations of vision and knowledge. The humans perpetuate a form of conspicuously non-embodied technologised vision – their acts of military violence are often represented as seen through the telescopic sights of guns, gunships or bulky mechanical suits. Even the largely benevolent scientists embark on a discovery of the planet rooted in empiricist ideals of classification through observation – their accumulated knowledge is stored and displayed as banal infographics. Conversely, the Na'vi (and all other animal life on Pandora) possess a braid of neural tissue which facilitates a link between minds, to the goddess Eywa, and to the planet. Each plant, animal and mineral on Pandora acts like a synapse in the human brain, affecting not only thoughts but bodily (and planetary) comportment. The braid resembles an organic version of the 'jack' from *The Matrix*, yet it has far from the same effect. Rather than connecting its host to an immaterial, virtual world, the Na'vi braid allows them to 'plug in' to other Pandoran life forms, facilitating an intersubjective, natural yet technocultural mode of being that enfolds mind, body and phenomenal field, calling to mind Merleau-Ponty's assertion that '[t]o be a body, is to be tied to a certain world… our body is not primarily *in* space: it is of it.'[31] In one scene, Neytiri tries to teach Jake to ride a direhorse – a quasi-equine Pandoran animal –

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[29] E. Grabiner, *I See You: The Shifting Paradigms of James Cameron's Avatar* (Jefferson: McFarland, 2012), 29-30.
[30] The capitalisation of 'See' is included in the script; see 'Avatar Script' on Imsdb.com [available at http://www.imsdb.com/scripts/Avatar.html, accessed 05/07/2015].
[31] *Phenomenology of Perception*, 148.

which he must connect with using his neural braid. As he repeatedly fails, Neytiri implores him to "Feel her. Feel her heartbeat. Her breath. Feel her strong legs." Tsu'Tey, a rival for Neytiri's affections, derisively tells her "this alien will learn nothing. A rock sees more." Jake's lack of success consists in his inability to adopt the indigenous technology: his failure to apprehend how the Na'vi 'see'. Such exchanges highlight *Avatar*'s broader idealisation of technologized vision as fundamentally embodied.

Avatar's use of 3D (and other digital effects technologies) operates mutually and instrumentally in furthering these associations. Ostensibly, 3D cinema corresponds more to the biological constraints of binocular human vision than inaugurating a novel conceptualisation of seeing.[32] As Ross notes, however, while stereoscopic images might ostensibly perpetuate the dislocated connotations of optical vision, in effect they augment our embodied relation to the image. 'Once the [3D] moving images are brought to life', she notes, 'the abundance of depth planes provokes an immersive effect through which the body is located within and in relation to, rather than at a fixed distance from, the content.'[33] The experience of 3D cinema is not characterised by a sense of distance and observation, she argues, but one of intersubjective proximity and enhanced haptic affect. In exploring this, Ross extends Marks' discussion of 'haptic visuality' in independent intercultural cinemas, in which we apprehend images 'not to distinguish form so much as to discern texture.'[34] As such, we attend more to their affective qualities than their empirical existence and symbolic value. Ross likens this effect to that of 3D cinema, and *Avatar* in particular. For Ross, '[i]f the intercultural cinema that Marks examines plays upon and exploits the uncontrollable, tactile quality of images in the production of haptic visuality, then 3-D cinema asserts an uncontrollable, infinite depth in its image, producing a *hyperhaptic* visuality.'[35]

This 'hyperhaptic' visuality characterises the 'liveliness' of the stereoscopic image, which disrupts empirical classification and objective meaning, and instead focalises its own sensual qualities and self-sufficiency *as image*. Through shallow focus, parallax and close framings, the tactile quality of the image is apprehensible regardless of its objective intelligibility:

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[32] Prince, for example, problematizes the claim that 'stereographic cinema comes closer to natural vision'. See *Digital Visual Effects in Cinema*, 216-218.
[33] 'The 3-D aesthetic', 383.
[34] L. U. Marks, *The Skin of the Film*, 162.
[35] 'The 3-D aesthetic', 384.

> Rather than finding distance from the screen and a sense of mastery over the images, we consider and reconfigure our bodily placement in relation to the screen content. This factor, combined with the expansiveness of depth, means that while images may be clear and intelligible, they invite a more tactile exploration. [36]

For Ross, *Avatar* embodies the 'hyperhaptic visuality' of 3D through its consistent use of close-ups and extreme close-ups on faces, and its largely shallow depth of field. Indeed, *Avatar*'s use of 3D frequently highlights the texture of the skin and eyes of the subject – often Jake in his human and Na'vi forms, while shallow focus centres and emphasises the tactile surface of what is being presented.

Avatar's opening scene exhibits a striking example of this kind of hyperhaptic visuality working in tandem with narrative exposition. We first see Jake's face in extreme close-up, as he slumbers aboard the spaceship to Pandora. Presently, focus shifts to the extreme foreground, bringing into relief a bead of water floating in front of Jake. Through negative parallax, this droplet hangs in equal proximity between Jake and the spectator. Here again the violability of the framing screen constructs a sense of diegetic-worldly continuity, and moreover imparts a subtle sense of expository continuity between his and our anticipation of events to come. To draw from Marks (via Barker) once more, *Avatar* here exemplifies 3D's potential to provoke physical affect, or a sense of 'touching not mastering'.[37] The 'hyperhaptic' quality of the 3D image is employed here to introduce 'a depth that includes texture and the desire to touch and be touched by this texture.'[38] The wetness and weightlessness of the droplet invite us, and Jake, to touch – although neither we nor he are capable of doing so in our technologically induced stasis. Not until he reaches Pandora will Jake – and we – be induced into a richer phenomenological relation to the diegetic world.

As focus shifts back to Jake's face, the floating droplet seems to dissipate into vapour. Having spatially and affectively aligned us with Jake, this substantial focal shift does not feel intrusive. For Cubitt,

> [*Avatar*] has to train its audience against one of the pleasures of the modern blockbuster spectacle: the opportunity to let your eyes roam over the whole of the screen. Here we see the inverse of the monarchical seat in the baroque theatre: everyone occupies the perfect seat, but they must occupy it precisely as defined by the film's optical system, or suffer the consequent eyestrain.[39]

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[36] Ibid., 385.
[37] L. U. Marks, cited in iIbid., 384.
[38] Ibid., 384.
[39] S. Cubitt, 'Making Space' in *Senses of Cinema*, vol. 57 (December 2010) [available at http://sensesofcinema.com/2010/feature-articles/making-space/, accessed 16/07/2015], no pagination.

Yet the above instance seems rather less like an aggressive attempt at visual coercion given the expository and identificatory functions of the scene. Brought into focus and relief, the droplet need not vie for our attention; it presents itself as a natural object to catch our eye – present in front of Jake, and present in front of us.

These focal shifts moreover read as a subjective action on the part of the film itself. As it captures, approximates and melds with the spectator's own experience of the image, an interdependent relation is established not only between our perceptive act and that of the film, but the object which solicits this perception. Within the film experience, Sobchack points out, both the film's body and the spectator's body are 'each their own respective fulcrum of attention – each as much a pressure on attention's direction in the world as are the world's objects which provoke it.' That the directed focal shift does not feel coercive consists in how it positions the object – the droplet – as a self-evident director of attention, reflecting how '[e]ven as the moment of attention is creative… the movement of attention is provoked by pre-reflective engagement with a *world*.'[40]

Writing in 1990, well before the most recent revival of 3D, Sobchack notes that '[v]isible optical movement such as the "zoom" and shifting or "rack focus" best expresses the perceptual process of the transformation wrought by the activity of attention."[41] Yet 3D represents an intensification of this directed and intentional visuality, enhancing the material affectivity of such shifts even as it accentuates the intangible immateriality of the image. The subtle disempowerment engendered by 3D's shallow, structured depth planes undermines the impetus to observe and classify onscreen phenomena in favour of producing a more equivocal relation between viewing subject and viewed phenomenon. As Ellen Grabiner puts it, '*Avatar* makes the case for a revisioning of the prevalent visual paradigm, moving it away from a "power-over", reifying gaze in favour of a more holistic, embodied approach to the practice of looking', adopting a new regime of vision which 'melds together the seeing and the seen'.[42] The equivalence constructed between (material) spectator and the (immaterial) image undermines ontological distinctions between technologically mediated and 'unmediated' states of being, reflecting and augmenting worldly relations to media technologies in the digital age. Again, this resonates with a specifically cinematic articulation of postdigital culture – in which spectacular technological

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[40] V. Sobchack, 'The Active Eye: A Phenomenology of Cinematic Vision' in *Quarterly Review of Film and Video*, vol. 12, no. 3 (1990), 28.
[41] Ibid.
[42] *I See You*, 2.

display is geared toward the disruption of boundaries between mediated and unmediated experience: analogue and digital, materiality and immateriality.

Grabiner considers *Avatar*'s aesthetic and narrative focus on embodied vision as antithetical to the experience of contemporary media technologies. She asserts that the film 'brings into relief our own visuality and the extent to which current technologies – video games, simulations, virtual reality – designed to show us more, actually place us at a greater remove from our own embodied experience of seeing.' In response to such mediations, she suggests, *Avatar* 'offers as an alternative a practice of embodied vision.'[43] While *Avatar* does certainly imagine an idealised mode of remarkably embodied technologized vision, it is highly arguable that the media Grabiner cites displace vision from the body. By progressively shaping Jake's (and by extension our) experience of Pandora, *Avatar* allusively challenges the dominance of the visual-cerebral nexus in the substantiation of all forms of mediated experience. 3D operates in *Avatar* in to emphasise instead its extrapolative dream of a tactile, technological visuality. Melding together our processes of understanding and of seeing – the narrative 'what' and the spectacular 'how' – *Avatar* thus endows the 'virtual' image with affective liveliness and discursive significance.

The assertion that *Avatar*'s narrative and spectacular elements operate mutually in the production of meaning contradicts several existing analyses of 3D cinematic address. On stereoscopic cinema between 1838 and 1952, Ray Zone states that '3D images present a heightened realism – a visual allure so powerful that they can easily overwhelm the story and subvert the narrative.'[44] But alongside 3D's much cited propensity to create sensory spectacle, it is important to note that 3D is also employed in ways which belie an impetus to continue (narrative and aesthetic) cinematic traditions. As Klinger asserts, 'like other innovations, including CGI, 3D has been deployed within traditions of storytelling and style', and moreover '3D's commercial viability depends on conformity to these traditions as well as to its added value as a 'special effect".[45] In particular, our identification with Jake and his situation is instrumental to our apprehension of the (visual *and* affective) pleasures associated with the digitally-enabled Pandora.

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[43] Ibid., 2.
[44] R. Zone, *Stereoscopic Cinema and the Origins of 3-D Film, 1938-1952* (Lexington: University Press of Kentucky, 2007), 4.
[45] 'Three-dimensional Cinema', 424.

Motion Capture

Avatar represents another special effects milestone in its innovative use of motion capture technology (mocap) – the second of two means through which *Avatar* gestures beyond ontological separations of real and 'virtual' through its address to and about the body. On mocap's complicated ontology, Yacov Freedman cites a disagreement within the Hollywood film industry about whether the process constitutes digital animation or live-action. Where films such as *The Polar Express* (Zemeckis, 2004) and *Beowulf* (Zemeckis, 2007) were entered into animation categories, he points out, *Avatar*'s Best Picture nomination testifies to how the Academy 'still views character animation as a necessary component of motion capture', and so 'motion capture can paradoxically qualify a film as animation while qualifying one of its performers for an acting award.'[46] As *Avatar*'s nomination suggests, this was received as a successful attempt to position mocap as an extension of the actor, rather than foremost an achievement in animation.[47] In what follows, I explore how *Avatar* successfully complicates ontologies of digital animation and live-action, material and immaterial through the phenomenal responses engendered through mocap. In the case of *Avatar*, their tight diegetic integration is particularly crucial in informing and contextualising the sensory address of these images, and in shaping their parallel diegetic and extradiegetic resonance.

While mocap had previously been spectacularly employed in Hollywood cinema – from *The Lawnmower Man* to the *Lord of The Rings* trilogy (Jackson, 2001-3), *Avatar*'s special effects team mobilised more sophisticated techniques including individualised facial recognition cameras and real-time character imaging. These innovations were accomplished through two main devices – first, a handheld, spatially tracked 'virtual camera' that captured actors' movements and rendered them as animated characters in real-time. Second, a device called the Simulcam – a live-action camera with position reflectors that could read and correlate data from the virtual camera. As virtual-production supervisor Glenn Derry explains, Simulcam 'superimposed the CG world and characters into the live-action photography by tracking the position of the live-action camera and creating a virtual camera in the CG world in the same place.'[48] The ensemble provided Cameron with a low-resolution view of the motion-captured characters within a CG Pandora, composited and

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[46] Y. Freedman, 'Is It Real… or Is It Motion Capture? The Battle to Redefine Animation in the Age of Digital Performance' in *The Velvet Light Trap*, no. 69 (Spring 2012), 47.
[47] Ibid., 46.
[48] G. Derry, cited in J. Holben, 'Conquering New Worlds' in *American Cinematographer* (January 2010), 2.

live-streamed though monitors on set. Cameron could thus direct and shoot a scene as if shooting live action, simply by moving within the mocap stage.

This mocap apparatus establishes an equivocal relation between the profilmic and the virtual by disrupting the idea that digital special effects technologies are part of the post-production process, and thus largely divorced from the performative and filmmaking context. For Jenna Ng, however, the alterity between the Simulcam image and its referents is highly ontologically significant. She points out that while the profilmic in this context can be considered the human actors on the mocap stage, Cameron was effectively directing the blue Na'vi inhabitants of Pandora within a distinct alternate 'reality':

> Cameron was no longer seeing *through* the camera; he was partaking – feeling, being – *in its own reality*. In this reality, the visible – the human actors in front of the camera – is rendered invisible; the human actors are not seen through the camera, only sensed.[49]

This process, she asserts, thus 'upends the camera's vaunted purpose and role as a visual device.'[50] Mocap effaces the visual (and sometimes the aural) qualities of the profilmic object, and applies 'isolated movement to the image, so that the moving image is now not of the audiovisual but of the kinaesthetic, with somewhat different accompanying sensorial constituents'.[51] Thus '[w]hat is recorded in mocap is data of a profilmic object's positional *change* in space, rather than data of the object itself.'[52] For Ng, this has particular significance with regard to the profilmic body. She takes up Stacey Abbott's assertion that contemporary SF cinema 'serves to make the invisible visible', using 'digital technology not to rupture the boundaries of the body but rather to stretch and extend the body beyond its usual limits.'[53] Ng, however, suggests that mocap does the very opposite, rendering the visible *invisible* in favour of reproducing movement independently of its object. Thus mocap 'uses digital technology to *eliminate* the body, to expose the ghost in the shell', and in SF films like *Avatar*, it 'signals the shift not just away from the body, but its abandonment altogether'.[54]

While Ng asserts that mocap fundamentally captures movement in-and-of-itself, independently of its profilmic embodied origin, I contend that this does not necessarily

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[49] J. Ng, 'Seeing Movement: On Motion Capture Animation and James Cameron's *Avatar*' in *Animation*, vol. 7, no. 3 (November 2012), 277.
[50] Ibid.
[51] Ibid., 279.
[52] Ibid., 274.
[53] S. Abbott, 'Final Frontiers: Computer-Generated Imagery and the Science Fiction Film' in *Science Fiction Studies*, vol. 33, no.1 (March 2006), 97.
[54] 'Seeing Movement', 283.

define a spectator's experience of the resultant imagery, nor does it guarantee their experience of the body as 'abandoned'. In Hollywood narrative cinema, we are already conditioned to accept both anthropomorphic and non-anthropomorphic agents as sentient. Although mocap serves to accentuate the active role of technology in imaging bodies, moreover, the cinema has always 'translated' its actors to the screen as image. For Ng, mocap 'distils movement from the moving body,'[55] but in order to do so, it necessarily draws from the material body and its comportment, to engender our perceptual recognition of another (diegetically worldly) subject.

A sense of apparent or perceptual indexicality persists in terms of what is expected and enjoyed when an actor appears in a digitised form. When I first see *Avatar*'s most recognisable 'star' – Sigourney Weaver – transformed into her avatar self, I am fascinated not by the disappearance of Weaver, or her reduction to pure movement, but by her apparent *presence* onscreen – by the captured contours of her face, expressions and mannerisms, and by my own readiness to accept the CG character as Weaver. We witness the actor's projected presence – being both 'here' and 'there' in a way which mirrors the situation of the cinematic spectator. This process of extradiegetic recognition does not detract from, but supports the narrative itself. Upon seeing Grace for the first time in her avatar body, Jake's process of surprise, wonder and acceptance mirrors our own, further crystallising our progressively fostered identification with his experience.

Yet it is important not overemphasise how *Avatar* captures the 'human' – and indeed, how it draws from other profilmic phenomena – at the expense of acknowledging what myriad other elements actively encode the film's space. As Wood points out, *Avatar*'s CGI does not simply 'fill the gaps' between motion captured profilmic elements, but co-constitutes the film's liveliness and its attraction.[56] While *Avatar*'s use of mocap can be seen to come closer to live-action cinema, Wood notes, it also bears the influence of another spectatorial desire: 'to display the possibilities of the technology used in making *Avatar*.'[57] As such, she suggests, to remain 'focused only on the realism of these images, or the traces of humanness within them, misses the way in which these spaces emerge at an intersection of codes' which collide in the hybrid and multifaceted spaces of the contemporary lived world.[58] *Avatar* generates and satisfies the twin desires for perceptual correspondence *and* technological display. At narrative and aesthetic levels, it combines the familiar and the

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[55] Ibid., 279.
[56] A. Wood, 'Where Codes Collide: The Emergent Ecology of *Avatar*' in *Animation*, vol. 7, no 3 (November 2012), 317.
[57] Ibid., 318.
[58] Ibid., 320.

novel, material translation and digital generation, in ways which refract a broader cultural shift beyond polarisations of the virtual and the real.

To further explore this hybridity, the mocap process can be productively considered in terms of Tanine Allison's notion of 'digital indexicality'. The term describes a blend of CG images and material recorded from reality which in effect diminishes paradigmatic ontological distinctions between the two. Despite anxieties about the lack of 'depth' or 'completeness' attributed to CG characters, for example, Allison points out that such characters often function as the emotional centres of films. On Peter Jackson's *King Kong*, for example, she notes Kong's 'psychological attachments', his 'complex personal history,' and the scope of his emotional expression.[59] Through the 'distilled movement' of motion capture we recognise an embodied being, both as a result of our narrative identification with the digitally rendered character, and our recognition and appreciation of the profilmic actor's performance (Andy Serkis as King Kong, Sigourney Weaver as Grace). In *Avatar*, mocap translates the embodied, intentional movement of the actors into the Na'vi bodies on screen to create perceptually believable images. In order to more fully realise this, the performances themselves were directly informed by real-world experience. Before shooting, cast members rehearsed in the rainforests of Kaua'i in Hawaii.[60] Actor Joel David Moore explains:

> We got to rehearse a few of the scenes, and we got to rehearse with physical things because we knew that we were going to go into a mocap stage[61]… You don't know how your foot lands in mud if you're just standing on cement… Your body reacts differently to things once you've actually gone out and done those things.[62]

Even and especially in the mocap context, performance must develop through extradiegetic material experience. Through rehearsal, actors' reactive performative responses – to the script, other actors and settings – become imbricated in the diegetic world, producing conditions which facilitate our acceptance of its verisimilitude. At the same time, the digital technologies through which these performances are encoded call us to notice this spectacular seamlessness – by augmenting the haptic and affective impacts of even relatively mundane actions that might otherwise pass largely unnoticed.

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[59] T. Allison, 'More than a Man in a Monkey Suit: Andy Serkis, Motion Capture, and Digital Realism' in *Quarterly Review of Film and Video*, vol. 28, no. 4 (2011), 327.
[60] 'Capturing Avatar' (documentary) on *Avatar: 3 Disc Collector's Edition* (DVD 2009), 39:05.
[61] Ibid., 41:32.
[62] Ibid., 41:42.

The causal-intentional relation of the living actor to their captured image is mirrored in Jake's relation to his avatar body. It is in this body – which is both his and of the 'other', subject and object, technological and natural, digital and material – that his most profound, affective and emotional experiences occur. Jake's experience of Pandora is moreover deeply connected to embodied memory – it is his paraplegia, for instance, which augments the joy and abandon he feels when re-embodied in his avatar, and moreover enables his instant facility with it. As Leigha McReynolds notes, 'Jake is the hero of the movie because of his ability to form prosthetic relationships – he embraces amborg status and modifies his body, privileging a new body that is defined by mutual interdependence (over the power of the autonomous self).'[63]

In turn, Jake's relation to his avatar is mirrored in the progressively fostered relation between spectator and cinematic image. Jake contrasts with the (often superlatively) able-bodied protagonists of previous VR films. Like L.B. Jeffries in Hitchcock's *Rear Window* (1954), wheelchair user Jake both allegorizes the immobility of the spectator and acts as an example against its passivity. As Brown observes, technology affords both Jake and the viewer 'the impression of supreme mobility… while in fact being practically static.'[64] Just as Jake is compelled to see, feel and understand the world through technological re-embodiment, the film compels us to apprehend new cinematic technologies in terms of their haptic and cognitive, spectacular and narrative significance. Diegetically and extradiegetically, the onscreen body acts a vehicle for processes of becoming – through the continuity between physical being and digitally mediated presence. For actor, character and spectator the physical, tactile and embodied basis of this experience is paramount to the realisation of 'avatar' transformation. This convergence of diegetic and extradiegetic digital embodiments evidences the tightly coalescent relation between narrative and technological spectacle in *Avatar*.

Mocap and the Avatar

Alongside *Avatar*'s reflexive refiguring of vision, it also engages in the refiguration of the concept of the avatar itself – a process which is contingent upon how mocap technology operates interdependently with narrative and extradiegetic context. From Hindu theology,

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[63] L. McReynolds, 'Animal and Alien Bodies as Prostheses: Reframing Disability in *Avatar* and *How to Train Your Dragon*' in K. Allan (ed.), *Disability in Science Fiction: Representations of Technology as Cure* (New York: Palgrave Macmillan, 2013), 122.
[64] 'Avatar', 266.

'avatar' originally refers to a god's incarnation on earth: an immaterial entity made material. Inversely, the contemporary significance of the term – which has roots in 1990s cyberculture – connotes an immaterial manifestation of an earthly (human) being within virtual space. *Avatar* presents yet another mythic meaning for the term which erodes the material-immaterial boundary on which the former definitions rely. Through the Na'vi avatar, a human character is re-embodied within an equally real, material body via digital technologies. The process does not culminate in the displacement of the material body, but its transmutation into a digitally mediated (yet no less physical) form.

This diegetic reinvention of the avatar encourages an analogous reading of the mocap process. While that which is captured is ostensibly 'reduced' to coded movement, the embodied experience from which the data originates remains apparent and significant in our experience of the avatar onscreen. A comparative relation is here constructed between the film's diegetic and technical displays of avatar embodiment and extradiegetic avatar experience. As Ross notes, '*Avatar* produces a fantasy universe in which full body displacement takes place, yet its basic premise also allows audiences to reflect on the avatar experience that they undertake at more mundane levels.'[65] By representing the avatar as a vehicle for digitally induced re-embodiment, as opposed to the projection of the human into a 'virtual' space, *Avatar* also alludes to the inherence of physical being and embodied sensation in the use of extradiegetic avatars. Ross asserts that in avatar experience the material body is divorced from its natural sensorium so that 'the cognitive centre can be projected into a new space', which is usually experienced through visual modes. However, she also suggests that 'the strong commitment that users feel to their avatar bodies often suggests that other senses are employed.'[66] As if appealing to this sense of embodied identification, the film envisions a form of avatar embodiment in which sensory impact and bodily presence is augmented beyond contemporary possibility. As with the VR films I have discussed, *Avatar* thus allows for a fantasy of bodily transcendence while also continually asserting the fundamental primacy of somatic feeling. But as a Post-VR film, *Avatar* envisions a mode of technologized being from which material embodiment is wholly indivisible. As such, it engenders a reflection on contemporary avatar use and 'virtual' spaces, in which embodied perception is progressively transformed through digitally mediated being.

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[65] 'The 3-D aesthetic', 387.
[66] Ibid.

Our increased intimacy with digital spaces and images, and acceptance of hyperreal, digitally mediated images as 'living', cues us to accept mocap's effective illusion of liveliness. As Russell W. Belk notes, '[i]n a more visual Internet environment of social media, virtual worlds, online games, blogs, web pages, photo- and video-sharing sites, Internet dating sites, and so forth, we are disembodied and re-embodied as avatars, photos, and videos.'[67] In the progressive process of creation, familiarisation and operation of our avatars, we increasingly identify with (and as) them.[68] Indeed, our acceptance of digitally imaged entities as humanlike, whether self or other, is well-established. As Kristine Nowak and Frank Biocca point out, '[v]isual images representing both human and nonhuman entities increasingly inhabit games, online shopping environments, and educational software applications',[69] while 'improvements in graphics and animation technology have made it increasingly possible for these visual images to appear human-like, or anthropomorphic.'[70] Moreover, they point out, advances in AI technologies within these applications have enabled computer programs to perform tasks traditionally reserved for humans – a development which has had a fundamental impact on our perceptions of agency.

> Historically, people have spent much effort marking the boundary between human and nonhuman, distinguishing humans from both animals and machines… However, these trends in computer animations and intelligence have made it increasingly difficult to make the human/nonhuman distinction, which we call *agency*, in virtual environments.[71]

The distinction between virtual and 'real' entities is progressively eroded as interactions with digital subjects (human or otherwise) proliferate. In the cinema and beyond, we perceive agency in digital avatars, and increasingly identify the latter as elements of the self and of others. The digital media user is able to constantly live and author digital versions of themselves: to monitor, regulate or otherwise define activity levels and diet (Myfitnesspal), location ('checking in' on Facebook), and appearance (posting 'selfies' on Facebook,

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[67] R. W. Belk, 'Extended Self in a Digital World' in *Journal of Consumer Research*, vol. 40, no. 3 (October 2013), 481.
[68] See, for example: T. L. Taylor, 'Living Digitally: Embodiment in Virtual Worlds' in R. Schroeder (ed.), *The Social Life of Avatars: Presence and Interaction in Shared Virtual Environments* (London: Springer-Verlag, 2002), and L. Robinson, 'The Cyberself: the self-ing project goes online, symbolic interaction in the digital age' in *New Media & Society*, vol. 9, no. 1 (February 2007), 93-110.
[69] K. L. Nowak and F Biocca, 'The effect of the agency and anthropomorphism on users' sense of telepresence, copresence, and social presence in virtual environments' in *Presence: Teleoperators and Virtual Environments*, vol. 12, no. 5 (October 2003), 481.
[70] Ibid.
[71] Ibid.

Instagram, etc.).[72] This relation is mirrored in the ontology of mocap images, which appear as simultaneously material, embodied and virtual, as well as perpetually present and real. As Beth Coleman points out, 'if we are nearly constantly mediated, then how are we making judgements between the real and the virtual? The answer is: we are not.'[73] In this context, mocap images like *Avatar*'s are strikingly evocative of the increasingly blurred ontologies of reality and virtuality.

Avatar's reflexive aesthetic presentation of imaging technologies situates the film in a complicated relation to cinema's representational function. For Ng, the Simulcam engages in 'the real time production of *its own reality*, not unlike the making of machinima in a video game, where the profilmic of the virtual camera are objects generated in accordance with the physics and aesthetics of the game world'.[74] And yet even when digital animation (including mocap) is marked by a radical difference from the profilmic, it has become deeply interconnected with our embodied experience of the world, self and other. As Kenny Chow notes:

> We feel that the digital environment is *animated*. By 'animated', I mean the medium is 'endowed with life' rather than just 'movement'. The visible digital objects show various kinds of liveliness in phenomena such as motion, reaction, adaptation and transformation. On the other hand, through experiencing these phenomena of liveliness we feel that our bodies are in touch with the digital objects.[75]

The illusion of life which mocap creates relies upon the aforementioned process by which virtual spaces, subjects and objects have come to hold great existential significance in spite of their existence as data. '*Their own reality*'[76] is no longer one which is ontologically separate from ours, and thus is no longer antithetical to the representational function of cinema.

The real-virtual schism had also become an anachronism within post-millennial VR itself. In 2006, Mark Hansen identifies an emergent paradigm of 'mixed reality' in VR practice, explaining that 'today's artists and engineers envision a fluid interpenetration of [real and virtual] realms'. Within this paradigm, VR is '[n]o longer a wholly distinct, if largely amorphous realm with rules all its own', but is refigured as more worldly integrated

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[72] See K. Warfield, 'Making Selfies/Making Self: digital subjectivites in the selfie' (conference paper), Fifth International Conference on the Image and the Image knowledge Community, Freie Universität, Berlin, Germany. October 29-30, 2014 [available at http://kora.kpu.ca/facultypub/8/, accessed 09/08/2015].
[73] B. Coleman, *Hello Avatar: Rise of the Networked Generation* (Cambridge, MA: MIT Press, 2011), 67.
[74] 'Seeing Movement', 277.
[75] K. Chow, *Animation, Embodiment and Digital Media: Human Experience of Technological Liveliness* (New York: Palgrave Macmillan, 2013), 2.
[76] 'Seeing Movement', 277.

– as an information space which can be interacted with as the user navigates real space.[77] This conceptualisation of VR as 'mixed reality' brings to the fore the centrality of the body, and thus of material being, in interfacing with the virtual.[78] Similarly, Elsaesser observes that "reality' in VR is no longer identified with index, trace, or reference, but with a total environment: it thus is a function of a coherence theory (of truth), rather than a correspondence theory.'[79] As a timely continuation of the VR subgenre, *Avatar* articulates a similarly reflexive emphasis on the establishment of coherent, perceptually credible spaces despite their ostensible aesthetic difference from the profilmic 'real'.

The perceptual intelligibility of *Avatar*'s fantastical spaces and motion-captured characters are also significantly dependent upon profilmic reference. Pandora's flora, fauna and landscapes all evoke earthly counterparts – its animals closely resemble horses, panthers or rhinoceroses, while its landscapes were designed with reference to, for instance, limestone formations in China's Guilin Region, and the Venezuelan jungle.[80] The extensive 'making of' content on various DVD editions of *Avatar* detail these and other parts of the production process which emphasise a link to the material world. Characters were designed in clay, for instance, while intricate Na'vi costumes were painstakingly tailored before being simulated by Weta.[81] While *Avatar*'s planet ultimately takes on the semblance of a 'virtual' space, its overt reference to more-or-less recognisable material phenomena engages us in an active comparison with our own reality, mirroring the diegetic emphasis on Pandora as virtual and material, familiar and other.

Alongside and in conjunction with *Avatar*'s production aesthetic, its narrative also challenges paradigmatic depictions of indexical 'reality' by appealing to a sense of creative and imaginative construction. *Avatar* begins with Jake's journey through space; its narrative develops and ends on Pandora – and so 'our world' is suspended from the diegesis. Set in the distant future – the year 2154 – it is difficult even to imagine how Earth might appear in the fabula. *Avatar* thus reflexively limits our comparison of Pandora to the quotidian, marking the planet itself as an ecosystem in a constant process of becoming, shaped and transformed by the mutual intersubjective actions of filmmakers, characters and spectators. Diegetic 'reality' is resituated within a spectacularly novel environment which relies upon

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[77] M. B. N. Hansen, *Bodies in Code: Interfaces with Digital Media* (New York: Routledge, 2006), 2.
[78] Ibid.
[79] T. Elsaesser, 'Pushing the Contradictions of the Digital: 'Virtual Reality' and 'Interactive Narrative' as Oxymorons between Narrative and Gaming' in *New Review of Film and Television Studies*, vol. 12, no. 3 (2014), 298.
[80] 'Capturing Avatar', 13:40.
[81] Ibid., 08:54.

the controlled apprehension of earthly, 'real-world' equivalence to substantiate it. The mocap translation of the live-action set, the profilmic phenomena which influenced production design and the transplantation of human society to Pandora work synergistically to emphasise the mutual construction, by filmmakers, actors, characters and audiences, of the diegetic world.

Digital Imaging and Diegetic Technologies

Avatar's use of innovative digital imaging practices is closely interconnected with its highly ambiguous moral attitude to technology. There is of course a vast discursive tradition which complicates ideas of 'good' and 'bad' technologies, emphasises human-machine relations, and disrupts boundaries between technology, nature and culture.[82] Reading *Avatar* as a manifestation of 'new' postdigital culture requires an acknowledgement that these boundaries have already been progressively eroded, and that in the Post-VR context, such operations are unprecedented more in degree than in nature. In keeping with VR cinema's established tendencies, *Avatar* compels its characters to disable a technological threat *through* technology, while drawing a clear moral distinction between positive and negative uses of technologies which directly relates to their phenomenological impacts. While 'hard' technologies – abstracted both from the body and the natural world – are demonised, technologies which allow for naturalised re-embodiment are idealised. Elements such as the womb-like pods which hold the body in stasis during avatar experience, and the biotechnological network-like structure of Eywa, simultaneously indulge an overt technological fantasy and a fevered idealisation of nature. While VR films such as *The Matrix* and *eXistenZ* presage this in their biotechnological VR apparatus, such representations often play upon a perversion of nature, or at least an evocative juxtaposition of the technological and the organic. Conversely, in *Avatar*, the nature-technology dichotomy largely upheld in VR cinema is undone; as Grabiner points out, 'in *Avatar* we find technology actually residing in nature, and the natural embedded in the technology in a way that schmears the discrete edges'[83].

This is particularly clear in the case of the Na'vi themselves. The ability of this ecologically conscious tribal society to coexist with(in) the planet Eywa stems from their

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[82] D. Haraway, 'A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century' in id. (ed.), *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991), 149-181.
[83] 'I See You', 48.

innate biology rather than any external technology. But the Na'vi are also doubly technological beings – both in their extradiegetic basis as digitally rendered images, and their diegetic basis as holistically linked, networked 'nodes' within the planetary matrix. The human use of avatars to enter into this network actualises both re-embodiment through the digital and a primordial return to nature, facilitating a sense of connection and continuity between the body and phenomena – digital and non-digital – which exist beyond it. On the other hand, the hard military technologies used by humans are inherently prosthetic rather than embodied, and exist in order to empirically classify phenomena, or to destroy them. The humans 'discover' Pandora through technological lenses designed to reveal their empirical worth, using digitally imaged holographic maps to locate the large unobtainium vein beneath the Na'vi 'Home Tree'. This reduction of the planet to an objectively functional, low-resolution data image proves misleading, and when the humans move to attack the tree, they are taken aback by its scale and grandeur. Indeed, this is the moment at which Trudy – a military pilot – rebels, refusing to take part in its destruction. The contrast between the low resolution diegetic image and the marvellous depiction of the diegetic tree itself underscores through spectacle the humans' mistaken dichotomisation of virtual and material, technological and organic.

The majority of the humans, and the warmongering Colonel Quatrich in particular, operate as a force to anchor Jake to an anachronistic world in which technology is prosthetic and partial rather than embodied and holistic. He is encouraged to go among the Na'vi to learn their secrets – not to integrate or truly live among them.[84] Through the promise of an operation to fix his 'real' body, Jake is incentivised to maintain a degree of separation between technologized being and his original reality. The conflict between embodied and non-embodied technologies is enacted in the battle between Jake and Quatrich. Jake ultimately triumphs in his sensing, biotechnological avatar body, while Quatrich – encased in a clumsy, robotic mecha-suit – is overcome. While human technology initially allows Jake to transcend the limitations of 'hard' technologies, it is the organic Pandoran technology which ultimately allows him to truly embody the technological, as his consciousness is transferred irreversibly into his avatar form.

Avatar's ambivalent casting of technologies is both problematic and revealing when read in relation to the film's industrial-technological context. As Elsaesser notes, '[w]hat in

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[84] In many ways, *Avatar* reads as a particularly postcolonial fantasy. Its heady and exotic idealisation of the technological 'native' offers its hero, to borrow a phrase from John Rieder, 'all the rewards of colonialism with none of the guilt.' See J. Rieder, 'Race and Revenge Fantasies in Avatar, District 9 and Inglourious Basterds' in *Science Fiction Film and Television*, vol. 4, no. 1 (Spring 2011), 47.

the film appears explicitly as the military-industrial complex of the evil corporation is nothing other than a camouflage (or avatar) for the military-entertainment complex *that de facto sustains the film and makes it possible*.'[85] Acknowledging the film's reflexive bridging of the diegetic and the extradiegetic, Elsaesser points out that the instruments the humans use to locate the unobtainium are reliant upon 3D imaging; the very technologies that are responsible for Pandora's striking flora and fauna are the same technologies mobilised to destroy it. This, Elsaesser asserts, is redolent of 'the tight mutual interdependence between military and engineering 3-D, and movie-making and computer-gaming 3-D.'[86] *Avatar* thematises this alliance in a way which 'testifies to, critiques and embodies its own contradictions' and, in effect, 'owns up to Hollywood's covert collusion with the military-industrial complex, which [its] overt ideological message would seem to contest and criticize.'[87]

Within *Avatar*'s often jarringly ambiguous attitude to technology, then, ideologies of environmentalism and 'progress' both conflict and overlap, forming one of the film's many cognitive dissonances – or double binds – pointed out by Elsaesser. He notes that, while not every spectator may be aware of or troubled by these contradictions, their cumulative effect provokes the spectator to actively engage in the production of meaning 'in order to disambiguate the 'mixed messages', or to untie the knot of the double bind.' For Elsaesser, the effect of the double bind exercises 'control without coercion' through enlisting committed cooperation to the production of meaning – provoking strong, involved readings, an 'affective bond' with the film, and even an illusion of spectatorial empowerment.[88] In this way, *Avatar* narratively approximates the kinds of interactivity provided by digital media such as video games and the internet. This sense is moreover extended beyond the diegetic through convergent online content; any information that might elaborate on, for example, how unobtainium works can be found in the film's detailed online encyclopaedia.[89]

This implementation of extraneous media which is open to (controlled) user participation has the potential to foster interactivity regardless of whether or not it is consumed. On one hand, it solicits involvement by allowing audiences to seek out and process additional information. On the other, its very existence permits a sparse

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[85] T. Elsaesser, 'James Cameron's *Avatar*: access for all' in *New Review of Film and Television Studies*, vol. 9 no. 2 (2011), 259-260.
[86] Ibid., 259.
[87] Ibid., 260.
[88] Ibid.
[89] See Pandorapedia.com [available at http://www.pandorapedia.com/, accessed 13/05/2015].

explanation of phenomena within the film itself. Since these omissions necessitate active inference, *Avatar* can foster strong and diverse readings. For Belton, digital technology constitutes a false revolution in cinematic terms, since digital projection technology is not physically interactive. 'For it to be truly digital,' he states, 'it must be digital for the audience as well. There would have to be a computer mouse or a virtual reality glove at every seat in the theater.'[90] In the absence of such additions (which in any case, as I have noted, do not invariably characterise our experience of digital media in the contemporary world), *Avatar* is an example of Hollywood cinema's appeals to interactivity through an (ultimately controlled) sense of spectatorial empowerment.

Avatar's emphasis on nature thus not only imparts a problematic ecological message, but addresses us as beings who ourselves assume digital identities and engage in digital environments and narratives in a *naturalised* way. Our investment in this narrative fantasy is augmented by the opulent affectivity of the film's digital imagery. As *New York Times*' Adam Cohen notes:

> The movie's rich 3-D technology allows the audience to feel that it has lived among the Na'Vi as well. Through this immersion experience, we undergo the same kind of moral education as the characters who lived with the Na'Vi.[91]

The idea that immersive visual and narrative experience induces a 'moral education' in *Avatar* is more comprehensively explored by Ken Hillis, who moreover explicates how this relates to worldly technological interactions. He states that the film indulges a 'collective post-Hive Mind fantasy: an inverted prelapsarian vision of the individual as a networked empath'. Moreover, *Avatar*'s special effects 'work synergistically with its depiction of the Na'vi as a pre-Cartesian society, a 3D global village literally in touch and connected with the wider sentient world they inhabit.'[92] As I have demonstrated, this synergistic fantasy is progressively played out as Jake and others gradually accept their mediated experiences of Pandora as *real*.

While VR films imbue their virtual environments with consequentiality (usually, characters can potentially die within them), they never become truly 'real' – and 'reality' remains the ontologically and morally superior realm. *Avatar* initially erects the same

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[90] 'Digital Cinema: A False Revolution', 105.
[91] A. Cohen, 'Next-Generation 3-D Medium of 'Avatar' Underscores Its Message' in *New York Times* (25/12/2009) [available at http://www.nytimes.com/2009/12/26/opinion/26sat4.html?_r=0, accessed 10/08/2015].
[92] K. Hillis, 'From Capital to Karma: James Cameron's *Avatar*' in *Postmodern Culture*, vol. 19, no. 3 (May 2009) [available at https://muse-jhu-edu.ezproxy.sussex.ac.uk/journals/postmodern_culture/v019/19.3.hillis.html, accessed 15/03/2016], no pagination.

hierarchical dichotomy in order to progressively refute it. Upon first assuming his avatar form, Jake seems overwhelmed by spectacle. He treats his avatar body as prosthetic, and Pandora as an inconsequential dreamscape. Gradually, however, Jake undergoes a profound ontological reversal by which his avatar-embodied existence comes to constitute his 'real' life. While Jake resembles the VR protagonist as a surrogate for mediated experience, he is not a character for whom digitally enabled states of being remain abstract, manipulable and other-worldly (as in *Tron*, *Lawnmower Man* and *The Matrix*) or intense, uncontrollable vicarious experiences (as in *Strange Days*). Over a montage which shows Jake's prone body lying in the pod interspersed with cuts to his Na'vi avatar exploring Pandora, his voice over tells us that "everything is backwards now. Like out there is the true world, and in here is the dream." What has initially appeared to him (and us) as 'virtual' becomes Jake's most meaningful reality. As such, *Avatar*'s narrative allegorises how mediated experience can be (and, to a great extent, has become) truly interactive, affective and materially significant.

Conclusion

As a Post-VR film, *Avatar* is strikingly evocative of the premises, themes and aesthetics of the VR subgenre. While it negotiates the impact of digital technologies on embodied being, presence and communication in similar ways, *Avatar* fundamentally contradicts many of the VR subgenre's key assumptions. With some trepidation, and in full recognition that the film precedes the postdigital moment, I have posited that *Avatar* is curiously redolent and prescient of postdigital culture, particularly in its reflexive and allusive rejections of distinctions between old and new media, real and virtual, body and mind. Reconciling the concerns of the VR film with its contemporary context, *Avatar*'s remediation of the VR subgenre reflects the fact that digital mediations which are at once familiar and other, real and virtual, material and immaterial, proliferate to such an extent that such distinctions no longer chiefly characterise our experience, nor preclude our acceptance of their authenticity.

Thus in an era of digital proliferation, *Avatar* still capitalises on cinema's link to the 'real'. Through material and conceptual reference to the profilmic, the film portrays a world in which fantastical, digitally mediated and yet 'real' experience is progressively naturalised as an integral part of postdigital life. *Avatar* thus simultaneously affirms cinema's continued ability to represent and to extrapolate – to retain its classical functions of storytelling and

spectacle and to refigure them through and in relation to new media modalities. Yet while *Avatar* relies upon, approximates and even promotes digital media technologies, it simultaneously emphasises – through extrapolative outperformance – the limitations of the quotidian digital.

Avatar's reflexive technological display engenders a sense of wonder which is not alienated from, but intimately connected to, its narrative; as Grabiner notes, '[t]he narrative, the technology used to create the film, and the moviegoer experience are all three interlaced; the meaning is imparted in the form that the film makes.'[93] *Avatar*'s diverse affective and conceptual operations are facilitated by the reflexive intertwining of narrative and spectacular, diegetic and extradiegetic meaning. While *Avatar*'s hyperreal imagery has led some to proclaim 'the image as hero',[94] reading *Avatar* as a Post-VR film illuminates the extent to which narrative, characterisation and spectacle operate interdependently, to highlight and negotiate the multiplicity of contemporary digital mediations. *Avatar* thematises and reflects how digital media and image culture inevitably inflects the construction of narrative itself. The film demands and addresses a contemporary 'digitally literate spectator'[95] – a spectator who, as Purse notes, would easily recognise that digital effects and the tools which create them are not 'somehow outside of narrative.'[96]

Avatar eschews outmoded dichotomies between our physical (embodied) and digital (disembodied) lives often assumed in pre-millennial VR fiction, undermining some earlier post-humanist standpoints in which the body is no longer a necessary factor in digital subjectivities.[97] In refusing distinctions between real and virtual, material and immaterial, *Avatar* emphasises the primacy of the body in any and all forms of perceptual experience. Through its remedial mobilisations of vision and the avatar, the film refuses to oppose or fragment the body (sight is not touch, the avatar body is not 'my body'). The film's reflexive and ambivalent discourse on technology is amplified and humanised by implicating its characters and audience in correspondent phenomenological processes. By imbricating medium and message, diegetic and extradiegetic, real and virtual, material and immaterial, natural and technological, *Avatar* insists on cinema's continued propensity to transgress, erode and undermine boundaries which, in its contemporary moment, have become both banal and untenable.

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[93] *I See You*, 2.
[94] J. Chapman and N. Cull, 'The Image as Hero' in *Projecting Tomorrow,* 199-215.
[95] '*Digital Imaging in Popular Cinema*', 25.
[96] Ibid., 26.
[97] See for example A. Kroker and M. Kroker (eds.), *Digital Delirium* (New York: St Martin's Press, 1997).

Chapter Six

"Am I on the Right Track"? *Source Code* as a Contemporary Complex Narrative

> We continue to invent the cinema. As film becomes video becomes digital, the cinema remains a fluid vehicle, perpetually in process, unstable in its projection and reception, and more difficult to interpret and deconstruct. Accompanying each shift, options appear that expand the possibilities for resistance within the text by forming gaps in the flow of the experience. Those intervals provide an opportunity for reconstructing meaning. The forks in the road set up decision-making junctures. Each becomes a moment of silence, a negative space. Positioned to maneuver within those gaps, film and video makers and spectators can incrementally break down and gradually rebuild the codes binding them in their experience.[1]

Writing in the late 1990s, David Tafler eloquently describes the ways in which diverse media forms reshape and reconstitute cinema. Like the VR films of the last century, Post-VR cinema evinces an enduring concern with narrating cinema's digital reinvention. Released in 2011, Duncan Jones' *Source Code* emerged well over a decade after the last VR film in this study. Like *Avatar*, it shares many central concerns with, and produces many productive divergences from, the VR subgenre which preceded it. Continuing the VR subgenre's negotiation of the ontology, epistemology and moral or phenomenological significance of differently mediated spaces, *Source Code* emerges as a reflexive mediation on the nature of cinema and the reality – or realities – which it seeks to represent. Without dichotomising the cinematic and the digital, or producing an evaluative construction of the relative merits of one medium over another, *Source Code* asserts the continuing pleasures of cinema and its enduring representational claim. The film both addresses and enacts the influence of an increasingly mediated contemporary age, breaking down the codes of cinematic meaning in order to produce new ways of seeing and experiencing narrative worlds. The following analysis seeks to demonstrate how a phenomenological reading of *Source Code*'s narrative and aesthetic significance sheds light on its productive and self-reflexive fissuring of cinematic codes.

Source Code follows US army pilot Captain Colter Stevens as he wakes up one day in a body that is not his own. He finds himself aboard a commuter train to Chicago, sitting opposite a woman named Christina who seems to know him well, but whom he has never knowingly met. After eight baffling minutes, a huge explosion engulfs the train, killing Colter along with all the other passengers. This sparse exposition sets the pace for the rest

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[1] D. Tafler, 'When Analogue Cinema becomes Digital Memory' in *Wide Angle*, vol. 21, no. 1, (1999), 182.

of the film, throughout which the SF premise is gradually revealed. After what seems like certain death, Colter awakes in a tiny capsule which resembles a battered helicopter cockpit. On a video screen appears Captain Colleen Goodwin, who informs Colter that he is on an important mission. The scenario in which he previously found himself, it turns out, is one which actually happened earlier that day. A bomb really did explode on the commuter train and the person responsible is plotting to detonate a second device in downtown Chicago in a few hours' time. Colter is the only hope of identifying the bomber and foiling this second plot – and so he is to be sent back to the same scenario, time and again, until he succeeds. In the face of Colter's urgent questions, Goodwin stresses that every minute wasted lessens his chance of success. Colter is returned to the train, back and forth, each time coming slightly closer to solving the plot, saving the day, and falling in love with Christina. Within and between loops, Colter doggedly questions the ontological nature of his situation – is it a simulation? Is he dead? Has he travelled back in time? Throughout the film, he (and we) wrestle with the ambiguous answers to these questions. Colter eventually learns that he has – to the outside world at least – died in a helicopter crash in Afghanistan. His consciousness is suspended within a military program called 'Source Code', which has the capability to 'transplant' him into the body of a passenger – Sean Fentress – for the eight minutes preceding his death. But it becomes clear that this is no straightforward time travel premise – Colter is in fact reliving a version of the past within a different parallel universe. At the beginning of each repetition, he awakes in the self-same position, opposite Christina who always asks the very same evocative question: "Am I on the right track?"

Like VR films before it, *Source Code* wrestles with the ontological ambiguities of digitally mediated space, and what it means to perceive within it. Colter's re-embodiment into Sean Fentress is somewhat reminiscent of the trope of VR as recorded experience seen in *Strange Days*. However, Colter's experiences are not exclusively virtual – and in almost diametric opposition to, say, *The Matrix*, what appears to be an initial VR twist is later revealed to be a parallel universe narrative. Despite their concern with questioning the ethical and perceptual differences between VR and unmediated existence, the majority of pre-millennial VR films construct an ostensibly clear-cut border between the 'real' and the 'virtual'.[2] Conversely, in *Source Code*, boundaries between mediated and unmediated reality are often constructed as narrative red herrings, in order to throw Colter – and the spectator – off the scent, and to foster an interrogative, interpretive relation to the film. In relation to the VR subgenre, *Source Code* represents mediated spaces which are even more ontologically

[2] A notable exception to this is Cronenberg's *eXistenZ*.

challenging. By representing a mode of digitally induced embodiment which is neither uncomplicatedly virtual, nor can it be experienced independently of technology, *Source Code* represents mediation as an integral and irreducible aspect of diegetic reality. The similarities and differences between *Source Code* and the VR subgenre refract broader cultural and phenomenological shifts from pre-millennial to contemporary conceptions of digital mediation – how it inflects and co-constitutes experience of everyday reality, and shapes the imagined realities of popular SF cinema.

It is possible to identify three ontological spaces (or realities) in *Source Code*: the train, the capsule, and the original, post-bombing universe in which Colter's body lies. This multiplicity of realities – and the shifting suggestions as to their relative ontological natures – works to highlight and undermine fixed categories of real and virtual, concrete and illusory, digital and cinematic. Just as Colter perpetually rethinks the nature of these spaces throughout the film, this is also contested in critical responses to the films. Victor Navarro-Remesal and Shaila García Catalán analyse *Source Code* as part of a study of time travel narratives,[3] while in SFX magazine *Cinefex* the train and the capsule are both implied to be virtual spaces.[4] Daniel Müller interprets *Source Code*'s parallel universes as diegetically 'imaginary' due to the film's privileging of Colter's 'potentially hallucinatory subjectivity' over its sparse treatment of the real-life context of the war in Afghanistan.[5] While ontological slippage within and between interpretations of the film is unsurprising given its narrative complexity, I set out to argue for a reading of the film based on the understanding that many of *Source Code*'s sequences – specifically, those that begin on the train – are not simulated or virtual spaces, but parallel universes which are no less diegetically 'real' than the original universe in which Colter's body lies. The implications of this position will, I hope, become clear as I bring it to bear on *Source Code*'s narrative-aesthetic operations.

Source Code's narrative ambiguity, intricacy and openness to interpretation is characteristic of a contemporary tendency for Hollywood and other cinemas to present narratives which are increasingly complex and multimodal. Engaging with growing discourse on the narrative intricacies of contemporary popular cinema, I undertake a close

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[3] V. Navarro-Remesal and S. García Catalán, 'Try Again: The Time Loop as a Problem-Solving Process in *Save the Date* and *Source Code*' in M. Jones and J. Ormrod (eds.), *Time Travel in Popular Media: Essays on Film, Television, Literature and Video Games* (Jefferson, NC: McFarland & Company, 2015), 208.

[4] Joe Fordham refers to the train sequences as an 'immersive re-creation of the train crash'; see J. Fordham, 'Reality Deconstructed' in *Cinefex* 126 (July 2011), 50.

[5] D. Müller, 'Narrations of Trauma in Mainstream Cinema: Forgetting Death in Duncan Jones' *Source Code* (2011)' in M. Elm, K. Kabalek and J. B. Köhne (eds.), *The Horrors of Trauma in Cinema: Violence Void Visualization* (Newcastle upon Tyne, Cambridge Scholars Press, 2014), 124.

reading of *Source Code* as a specific example of what I functionally refer to as 'complex narrative', in order to demonstrate the deconstructive value of situating such a reading within a genealogy of films which have negotiated similar thematic concerns. By reading *Source Code* not only as a complex narrative, but as a Post-VR film, I explore the intersections between the film's narrative form, aesthetics and subgeneric traits, as well as its evocations of extradiegetic digital media experiences, to suggest an interpretation which can account for the film's internal ambiguities.

After introducing some of the ways in which complex narratives have been discussed and understood, I undertake a phenomenological analysis of how *Source Code*'s aesthetics both underscore and produce complex narrative meaning. The paradigm of Cartesian interiority, which has in the past been interpreted as a condition of digital engagement and as central to the VR film, is implicit in several interpretations of *Source Code*'s spaces as imaginary or 'mind-spaces'. In exploring the imbrication of complex narrative and phenomenological experience, however, I argue that the film's narrative-aesthetic strategy foregrounds the material basis of human embodiment at all levels of mediation. Despite the film's ostensible premise, a cerebral, solipsistic model of digital engagement is evoked in order for it to be firmly refuted as flawed and untenable, while *Source Code*'s idealised form of diegetic mediation is fundamentally embedded in material, worldly interactions. As a meditation on 'reality' and experience, moreover, *Source Code*'s affective aesthetic dimensions are instrumental in conveying the phenomenological impact of the diverse forms of media engagement which it variously addresses, approximates and interrogates.

I bring this line of inquiry to bear on a close analysis of *Source Code* as a specific example of a contemporary complex narrative, in which I negotiate its various continuities with, and divergences from, cinematic narrative norms. As I elucidate, *Source Code*'s complex narrative treatment of digitally enabled 'counter-realities' reads as an evolutionary development of the VR narrative, in which the representation of digital experience as more material, detailed and 'worldly' legitimises similarly intricate and experimental narrative operations. Yet in order to move away from a conception of the film's 'complex' narrative predominantly in relation to the cinematic, I highlight how *Source Code* evokes multiple narrative and aesthetic points of comparison to other (digital) media through its adoption, adaptation and assimilation of their experiential modalities. *Source Code*'s overlapping narrative and aesthetic, conceptual and technical operations, I argue, derail a straightforward reading of the film as a 'cinematic' narrative phenomenon.

Approaches to Complex Narrative Cinema

What I have so far referred to as 'complex narratives' have been widely conceptualised in recent scholarship with a number of different emphases. Broadly speaking, such films have often been considered post-classical in that they resist classical modes of cinematic storytelling in favour of narratives which are characterised by complexity – mobilising such devices as multiple strands, unclear or complicated temporalities and retroactive causality. Buckland for example coins the terms 'puzzle films' and 'puzzle plots', in which the 'arrangement of events is not just complex, but complicated and perplexing',[6] while Alan Cameron uses 'modular narratives' to describe how such films' temporal play reflects a fascination with themes such as memory, history and chance.[7] Others refer to similar narratives as 'forked' and 'networked.'[8] While some emphasise the differences between complex narratives and classical Hollywood storytelling, others draw attention to their similarities – often identifying these with an underlying conservatism. Other approaches, which most resonate with my own, avoid overemphasising the connection between these films and the classical Hollywood narrative, for example Thomas Elsaesser's reading of the 'mind-game film.'[9]

David Bordwell's approach to complex narratives proves instructive in understanding some of the historical and cultural factors which have encouraged their proliferation. However, his analysis elides some contemporary intermedia factors which I would consider key, particularly when analysing *Source Code* as an example of such a narrative. Bordwell attributes the rise of what he calls 'multiple draft' storytelling to diverse cultural shifts and precursors in the cinema and beyond. He notes for instance 'the changing genre ecology of Hollywood' during the 1970s and 1980s, when 'certain genres like the musical and the Western faded out, and horror and science-fiction technofantasy became more important.'[10] These contemporaneously popular genres, he states, 'encourage playing around with subjective states (dreams, hallucinations), devising misleading narration, and creating branching and looping timelines (through time-travel, telepathy,

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[6] W. Buckland, 'Introduction: Puzzle Plots' in id. (ed.), *Puzzle Films: Complex Storytelling in Contemporary Cinema* (Oxford: Wiley-Blackwell, 2009), 3.
[7] A. Cameron, *Modular Narratives in Contemporary Cinema* (New York: Palgrave Macmillan, 2008).
[8] D. Bordwell, 'Film Futures' in *SubStance* , vol. 97, no. 31.1 (2002), 88-104; E. Branigan, 'Nearly True: Forking Plots, Forking Interpretations' in SubStance, vol. 31, no. 1 (2002), 105-114.
[9] T. Elsaesser, 'The Mind-Game Film' in *Puzzle films*, 13-41.
[10] D. Bordwell, 'Forking Tracks: SOURCE CODE' in K. Thompson and D. Bordwell, *Observations on Film Art* (Web) [available at http://www.davidbordwell.net/blog/2011/05/03/forking-tracks-source-code/, accessed 18/9/2015].

multiverses, and the like).'[11] Citing the boom in independent production of the 1980s and 1990s, Bordwell argues that narrative complexity became a way of diversifying Hollywood products, marketing specific films as distinct from standard blockbuster fare.[12] In explaining their popularity, he posits that the generation brought up with complex narratives on cable television were 'ready to embrace new innovations' and more likely to seek out new and novel narrative forms in cinema.[13] He also makes reference to innovative narratives in earlier Hollywood cinema – from Hitchcock's *Rope* (1948) and *Psycho* (1960), to Altman's *Nashville* (1975) and *A Wedding* (1978), to Coppola's *Rumble Fish* (1983) and Gilliam's *Brazil* (1985).[14] Detailed and convincing, Bordwell's analysis nevertheless appears to limit itself to a particular body of evidence. His plethora of reasons for these 'subjective stories' are largely related to old media precursors – such as cinema and television – rather than the influence of digital media, which is particularly curious given the thematic centrality of the digital in some of his examples.

Similarly for Matthew Campora, the cycle of complex narrative cinema in Hollywood (which he refers to as 'multiform' narrative) that began in the 1990s 'has been influenced less by databases or cyber-fiction than by the complex narratives of the cinema of the twentieth century; International art cinemas.'[15] He cites as examples *The Cabinet of Dr Caligari* (Robert Weine, 1919), *Un Chien Andalou* (Luis Buñuel, 1927), *Rashomon* (Akira Kurosawa, 1951) and *Wild Strawberries* (Ingmar Bergman, 1957).[16] While Campora concedes that 'digital technologies may well have influenced the production and reception' of complex narrative films, he is clearly wary of overstating the influence of digital media, databases, video games, etc., on such narratives, situating his analysis firmly in relation to existing cinematic precursors.[17]

The examples which Bordwell and Campora cite of course differ from the specific ways and means by which *Source Code*, and other complex narrative films, negotiate and remediate narrative convention in relation to more recent and contemporary culture. I argue that *Source Code*, as a case in point, bears more sustained textual comparison to the VR subgenre than, for instance, the structural-temporal tricks employed in Film Noir or Surrealist cinema. Moreover, while it is right to emphasise, as Bordwell and Campora do,

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[11] Ibid.
[12] D. Bordwell, *The Way Hollywood Tells It: Story and Style in Modern Movies* (Berkeley: University of California Press, 2006), 73 -74.
[13] Ibid., 74.
[14] Ibid.
[15] M. Campora, *Subjective Realist Cinema: From Expressionism to Inception* (New York: Berghahn Books, 2014), 4.
[16] Ibid., 6.
[17] Ibid., 34.

that there are precursors to these complex narratives, it is also essential to account for the extent and impact of this proliferation in contemporary popular cinema. Maria Poulaki engages more closely with the frequency and intensity with which this trope has appeared in recent years. Drawing from Gérard Genette's interrogation of the boundaries of literary narrative, Poulaki mobilises his conceptualisations of 'self-reflexivity' and 'description' in relation to contemporary complex narratives in cinema. After Genette, self-reflexivity can be thought of as 'the voice of the author and his or her self-referential accounts, which "intrudes" the text [*sic*] and suggests a threat to the "purity" of narrative'.[18] Description, or what might be thought of in cinema as spectacle or aesthetics, 'does not conform to the overall causal and temporal succession of the story; it rather suspends time and action.'[19] For Poulaki, these traditional 'boundaries of narrative' are challenged to an unprecedented degree in the complex narrative tendencies of post-1990s popular cinema. While such practices have also historically characterised avant-garde and art cinemas, in the past this 'formed part of an alternative and rather marginal way of storytelling, in relation to the dominant Hollywood practices'.[20] More recently, however, 'it seems that new forces tend to turn complex modes of narration into a new norm, as film narratives in which discourse and description proliferate are massively being promoted.'[21] Thus in contemporary 'complex' films such as *Fight Club* (David Fincher, 1999), *Requiem for a Dream* (Darren Aronofsky, 2000), *Inception* (Christopher Nolan, 2010) and *Source Code*, Poulaki notes that 'self-reflexive discourse and description – in their particular cinematic modes – gain ground, to the point that they tend to become their defining characteristics.'[22]

Central to Poulaki's analysis is the fact that these techniques, traditionally considered to suppress or displace narrative, cannot now be considered to be as cleanly distinct from it. She asserts that

> [b]oth self-reflexivity and description blur the borders between the fictional and the factual, and create modes of diction that, on the one hand do not contradict storytelling, and on the other hand, may organize story worlds in different and more complex ways from the ones that have classically been associated with "narrative", in literary but also in cinema theory.[23]

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[18] M. Poulaki, 'Self-reflexivity, description, and the boundaries of narrative cinema' in *Cinéma & Cie*, no. 18 (2012), 45.
[19] Ibid., 47.
[20] Ibid., 48.
[21] Ibid.
[22] Ibid.
[23] Ibid., 52.

Self-reflexivity and description, as Poulaki observes, are increasingly difficult to separate cleanly from cinematic narrative.[24] As I have previously argued, these elements do not necessarily hinder narrative, but actually co-constitute it. In *Source Code*'s Post-VR narrative, the intertwining of these discursive and descriptive elements is particularly apparent – enacting how they variously reshape, reorganise and constitute narrative to the extent that they alter its very scope.

Narrative, Aesthetics and Phenomenology

In order to expand on how *Source Code* evokes and comments upon diverse media experiences as part of a particular complex narrative strategy, it is crucial to first explore how its aesthetics contribute to this end. Keeping in mind the intensification of description and discourse in the organisation of contemporary cinematic worlds, I assert that *Source Code*'s reflexive visuality not only complements, but actively co-constitutes its narrative. To cite Pepita Hesselberth, 'we need to come up with ordering principles other than (or at least in addition to) narrative if we want to come to grips with the complexity of contemporary cinematics and the kind of viewer engagement it demands.'[25] Moreover, as a contemporary complex narrative, *Source Code* suggests that there is no need to emphasise a distinction between narrative, extradiegetic discourse and aesthetic description.

Source Code contains relatively few visual effects which overtly announce themselves as computer generated or digitally enabled – in contrast to the hyper-real digital dreamscapes of *Avatar* (and of many VR films). Despite the comparative restraint of *Source Code*'s special effects however, the ontological complexity of its narrative is no less deeply interconnected with its employment of both digital and analogue imagery. As in *Avatar*, *Source Code* reflexively evidences that cinema can both produce and reflexively narrate the proprioceptive or affective aspects of our engagement with diverse mediated experiences. Through tightly conjoined aesthetic and narrative strategies, *Source Code* challenges us to rethink our understanding of cinematic materiality, engendering an expanded conception of how diverse mediated phenomena may refigure the 'realities' which cinema strives to represent.

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[24] For a range of studies on reflexivity, intermediality and narrative complexity in diverse other media, see P. Harrigan and N. Wardrip-Fruin (eds.), *Third Person: Authoring and Exploring Vast Narratives* (Cambridge, MA: MIT Press, 2009).

[25] P. Hesselberth, 'From subject-effect to presence-effect: A deictic approach to the cinematic' in *NECSUS: European Journal of Media Studies*, no. 2 (Jan 2012), 242.

As a Post-VR narrative, *Source Code*'s aesthetic techniques provide ambiguous ontological signifiers of the nature of its represented worlds. It is thus important to consider how *Source Code*'s digital and non-digital visual effects convey a narrative which is explicitly *about* digitally mediated experience, and which productively extrapolates upon its phenomenological functions in contemporary life. Throughout the film, we share with Colter a series of realisations: first, that the train is neither his original 'reality' nor a simulation, but a parallel reality, and second, that the 'capsule' in which he finds himself in-between missions is not a material space but a projection of his own mind and residual body image. Colter and the spectator are denied reassurance about the ontology of what is being experienced, and both must negotiate and apprehend the diegetic nature of events through a complex set of narrative and aesthetic clues.

The Train

The train on which Colter begins each repetition of his journey is represented in a way that contrasts sharply with the presentation of the capsule. In particular, the train sequences involve more sustained use of digital visual effects, which are largely given to the production of naturalistic imagery such as the environments beyond the station platforms.[26] This naturalistic use of digital imaging evidences the expanded possibilities afforded to cinematic narrative by digital techniques themselves. At the level of production, *Source Code*'s repetition of the train sequence necessitated coherent and continuous imagery to appear outside the train window, on cue. In order to do this, the crew constructed a purpose built train-carriage set with green-screened windows, so that appropriate digital footage could be inserted later, allowing for continuity in each of the eight minute repetitions.[27] The use of such techniques in *Source Code* and other contemporary films reflects how digital technology can itself facilitate repetitive, nonlinear narratives.

Source Code's digital production of naturalistic imagery during the train sequences also assumes a special significance in relation to the film's Post-VR representations of ontologically ambiguous and phenomenologically differentiated spaces. While these sequences employ a considerable amount of (naturalistic) digital imagery they are also shot on film – and as such are imbued with a softer, more 'cinematic' aesthetic than the capsule,

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[26] As Louis Morin notes, "Barry Chusid built a Chicago train station in a parking lot in Montreal… We digitally extended the train's upper level and went completely virtual for all the backgrounds. In every shot, everything beyond the platform was 100% virtual", see 'Reality Deconstructed', 52.
[27] See 'Commentary', on *Source Code* (DVD 2011), 40:07.

which is marked by the sharp definition of digital cinematography. The difference in visual qualities, which I will expand on below, eventually underscores Colter's realisation that it is this – and not the capsule – which constitutes a real, material world. On even a basic aesthetic level, the disparity between worlds is here articulated in, and underscored by, the respective visual qualities of analogue and digital filming.

Like *Avatar*, *Source Code* is intensely engaged in diegetic and extradiegetic address to the body, and in emphasising the fundamental material contingency of perceptual experience. The materialities of cinema and the digital are again mobilised to make this point. The aesthetic representation of the train sequences in particular works to underpin their diegetic status as (real) parallel universes in which Colter is, in fact, fully embodied. This is key to how *Source Code* unsettles distinctions between mind and body, mediation and immediacy. Conversely, Patricia Pisters considers *Source Code* exemplary of how 'contemporary cinema has become a mental cinema that differs in major ways from previous dominant modes of filming.'[28] She cites the film's marketing pun – 'an action flick with brains', aligning it with *Avatar* as 'another case in point of 'brain power' in cinema, where the avatars are operated by brain activity.'[29] Indeed, Colter is ostensibly all-but brain dead – what remains of his mutilated body and brain are kept on life support in a VR-style incubator. However, it is important not to sidestep the fact that, while the Source Code program provides a link between Colter's mind and Sean's body, it gradually becomes clear that Colter is in fact being repeatedly re-embodied within equally material realities. Thus as the premise develops, the experiential distinction between mediated and unmediated begins to fray, and *Source Code*'s train sequences come to represent a form of digital mediation which (more so than in a VR scenario) is inextricably dependent upon material embodiment.

This is emphasised from the outset in the opening sequence, in which Colter assumes the body of Sean for the first time. As Colter awakes on the train, the phenomenological completeness of his experience is emphasised. Due to the film's lack of narrative exposition, moreover, this moment is one of questing bewilderment and heightened perceptual attention for both protagonist and spectator, aligning us with the sensory intensity and confusion which results from his complete and holistic re-embodiment. Even before his eyes open, Colter's mouth moves as if tasting something unfamiliar. On the DVD commentary, Gyllenhaal recalls his approach to this performance:

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[28] P. Pisters, 'Flashforward: The Future is Now' in *Deleuze Studies*, vol. 5 (2011), 111.
[29] Ibid., 110.

> If you're in someone else's body, what would it taste like?… My first response was, [this] doesn't taste right, something doesn't taste right, something doesn't smell right. It's all about the senses in this moment.[30]

This image is accompanied by the distant murmur of a train announcer, a slow mechanical clanking, and other, more indistinct and decelerated sounds – the effects of which are emphasised by the shot's hazy shallow focus. Pressed against the train window, Gyllenhaal's face is in focus while the rest of the frame is populated by the morphing greenish-blues of the landscape – as distant and indistinct as the background noise. As his eyes slowly open, and the sounds become clearer, Sean is suddenly jolted awake by the sounding of a train horn. The overwhelming impression here is one of birth – or rebirth – into a new and perplexing sensory world. A mid-shot of Christina, sitting opposite Colter, juxtaposes her calm and smiling face with a nauseating shaky-cam framing. His sensitivity to sound is emphasised now, as he is startled by the sound of another commuter opening a can of pop. His hands grip the table in front of him – a gesture which communicates, along with the unstable camera movement and rapid, eclectically angled POV shots, his sense of stomach-churning haptic dislocation. As the conductor requests Colter's ticket – which of course he has no memory of buying – Christina obligingly reaches into his pocket and he recoils at her touch.

From *Source Code*'s very first sequence, then, Colter's phenomenological engagement with the world is foregrounded. The exaggerated sensory completeness of the experience, in conjunction with a sense of intense unfamiliarity it provokes, piques interest in the ontological provenance of what he, and we, are experiencing. What remains central to Colter's, and our, process of discovery is his questioning of precisely what manner of experience he is subject to. Colter also occupies a similar position to the spectator in that his original self-image has no material place in the diegesis, and in that he is situated in relation to a pre-existing experience (Sean's last eight minutes) through technological mediation. From the outset, then, the Source Code scenario reads as a kind of phenomenological thought experiment (or rather, perceptual experiment), in which the spectator is similarly provoked to perceive the phenomenal field in novel and interrogative ways.

The interconnected diegetic and extradiegetic processes by which we attempt to unpick the ontological fabric of the diegesis are inextricably connected to Colter's sensory

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[30] 'Commentary', 02:18.

and intellectual apprehension of the same. On his second run through the Source Code program, Colter believes that he is subject to an elaborate simulation. He questions the veracity of events taking place, and starts to approach the mediated world as ontologically 'other' and thus without ethical consequences. In the following repetitions, Colter comes to understand that there is more to this world than a simulation – the other characters are as real and alive as he discovers himself to be. In these sequences, as Hesselberth points out, Colter is seen in a process of becoming 'one with himself as other.'[31] This evokes Merleau-Ponty's approach to human embodiment – in which we cannot touch ourselves or others without becoming aware of our own capacity to be touched,[32] as well as his emphasis on the body and the world as of the same material substance, and as engaged in an intertwining and open system of transformation.

> [M]y body is made of the same flesh as the world (it is a perceived), and moreover… [the] flesh of my body is shared by the world, the world reflects it, encroaches upon it and it encroaches upon the world (the felt [is] at the same time the culmination of subjectivity and the culmination of materiality), they are in a relation of transgression or of overlapping.[33]

Source Code seems to suggest a similar relation – Colter's apprehension of parallel worlds as realities, and other passengers as subjects within them, is consolidated by his perceptual apprehension of himself as other. The moment at which Colter comes face-to-face with Sean Fentress' (digitally composited) reflection in the bathroom mirror underscores his implicit realisation this is no less the case in digitally mediated encounters. As Colter comes to see himself as a subject in the (real yet mediated) world, *Source Code* produces a moral-phenomenological reflection on the contingency of perception upon the perceived, the imbrication of subject and world which endures regardless of how intensely experience is mediated. As Hesselberth observes, Colter 'has no perception of self-existence, of 'me" beyond his encounters through Source Code.[34] Indeed, even Colter's original body – which is grimly mutilated – bears little relation to his self-image. Hesselberth notes that despite the presence of his original body in the lab, Colter's 'sense of self-presence is wholly-dependent on his being part of a complex network of mediated interactions with other entities, sentient as well as non-sentient.'[35] While I have a differing interpretation with

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[31] 'From subject-effect to presence-effect', 256.
[32] M. Merleau-Ponty (A. Lingis trans), *The Visible and the Invisible* (Evanston, IL: Northwestern University Press, 1968), 147.
[33] Ibid., 248.
[34] 'From subject-effect to presence-effect', 256.
[35] Ibid.

regard to the ending, when Colter in fact appears to be freed from the Source Code, it remains that, throughout most of the narrative, Colter is only able to live, perceive and act through this mediation.

Even so, what Colter experiences is not an illusion of presence, but actual, embodied presence enabled by technologies. Due to his actual occupation of another body, and his observation – through varied repetition – of the material impact of his own actions and engagements with each parallel world, he realises that each relived sequence is not *the* reality but *a* reality, defined by the topology of objective materiality and subjective perception. By constructing and then denying a duality of 'real' and virtual spaces within the train sequences, *Source Code*'s parallel universe narrative undermines assumptions about the ontological differences between real and virtual, mediated and unmediated, cinematic and digital space. Its narrative complexity legitimises the film's production of complex phenomenological experiences which are articulated through its suggestive aesthetic presentation – knitting together its affective and thematic operations. In playful collusion with *Source Code*'s narrative process of concealing and revealing, a significant moment casts doubt upon the ontological reality of the train space through a jarring instance of digitally composited imagery. Halfway through one eight-minute repetition, Christina informs him that 'Colter Stevens' has been reported as having died two months ago, brought down in a helicopter crash in Afghanistan. On hearing the news, Colter reels, stunned and sweating, as Christina's face begins to pixelate in a way reminiscent of a Skype video glitch. This disintegration of the image gives way to subjective flashbacks – extreme wide-angle images of Colter's experience in Afghanistan, of Christina, foreshadowings of the film's final image – all contained in large, morphing and overlapping spheres, interspersed with playing cards floating in negative space.

In the Post-VR context, this moment is initially difficult to read as anything other than suggestive of a simulated world. However, this aesthetic fissuring between real and virtual is mobilised in a way which reflexively counters its ostensible significance. In narrative context, neither Colter nor the spectator has yet learned exactly how the Source Code technology works. As such, we – and he – can only assume that Colter is dead. As Jones explains, when Colter hears of his own death, it 'short-circuits him so much, that tenuous link yanks him back to the original reality.'[36] Thus the pixelation is in fact subjective, and signifies a transition back to the (virtual) capsule space. Colter's link is

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[36] A. Fitch, 'Source Code: Interview with Duncan Jones' in *Electric Sheep* (11/04/2011) [available at http://www.electricsheepmagazine.co.uk/features/2011/04/11/source-code-interview-with-duncan-jones/, accessed 14/10/2015].

'short-circuited' because, on finding out about his own reported 'death', this world and his phenomenal experience of it becomes an apparent paradox. Here we realise that Colter's existence in the parallel universe is contingent upon his belief that this is possible. On a parallel extradiegetic level, the glitch occurs as an apparent response to a breakdown in narrative logic – which is aesthetically emphasised through the seemingly paradoxical pixelation of the celluloid train sequence. Digital imagery is mobilised here to communicate the contingency of the mediation upon Colter's – and our – phenomenological acceptance of it, which is paralleled by our own eventual acceptance of the action as possible within the bounds of this remediated narrative.

The Capsule

While both the train and the capsule have a distinct aesthetic and a discrete kind of narrative significance, neither can be straightforwardly aligned with digital or cinematic imagery. In *Source Code*, it is not the ontology of the imaged space, but its phenomenological potential which dictates its relative 'reality' status. The relative visual qualities of the train sequences and the 'virtual' space in which Colter finds himself in between missions produce an amplification of their phenomenological and ontological differences. The capsule set was created using chiefly analogue techniques, and in line with Colter's initial belief in its reality, it first appears as an unspectacular, aesthetically 'profilmic' setting. As Jones explains, 'Colter first believes he is inside a structure that has some kind of coherency… That's why we designed the pod to resemble a helicopter cockpit.'[37] At the same time, subtle aesthetic signifiers create a sense of unreality from the outset. The capsule's strange polygonal wall panels are redolent of the virtual worlds of early VR cinema – such as those of *Tron* and *The Lawnmower Man*. This visual suggestion of the 'virtual' imparts a delicate ontological ambiguity to the space which becomes more overt as the narrative progresses. Production designer Barry Chusid built three different capsule sets,[38] so that each time he returns to the capsule, Colter's surroundings become more and more distorted, more polygonal. As the capsule morphs and expands around Colter, its increasing spatial incoherence correlates with the protagonist's growing despondency, emphasised through deepening darkness, progressively tighter framings and increasingly oblique angles. Yet these aesthetic signifiers of unreality are not computer-generated, nor

[37] 'Reality Deconstructed', 54.
[38] Ibid.

do they resemble the digitally spectacular, hyperreal virtual spaces of much VR cinema. As Colter starts to realise that the pod is 'a kind of virtual prison,'[39] Jones notes that it 'is supposed to resemble a Medieval prison cell with a window up at the top throwing light on him, like something out of an old Errol Flynn movie.'[40] Jones' evocation of a classically cinematic image is redolent of *Source Code*'s overarching suggestion that the manner of mediation – digital, cinematic or otherwise – is less significant than the potential it affords for significant embodied engagement.

Despite being largely disconnected from his body, Colter's apprehension of the virtual capsule is nevertheless tempered by his embodied memory and physical self-image. Aside from its resemblance to the helicopter cockpit in which Colter was reportedly brought down, a small window in its upper corner is the same shape as the incubator in the lab – a subtle suggestion of some dim sensory awareness emanating from his original body. In one sequence the capsule becomes frozen, and Colter's freezing breath betrays an embodied memory of coldness, and in another, the presence of Colter's body-image within the capsule is explained through the following exchange:

> **Colter:** One soldier to another, am I dead?
> **Goodwin:** Part of your brain remains activated.
> **Colter:** What about the rest of me? I can see my hands and feet, they still move.
> **Goodwin:** They are a manifestation – they're just your way of making sense of this.

Like in the VR films which preceded it, *Source Code* resists the idea that any virtual experience can be wholly disconnected from the perceptual experience of embodied being. *Source Code* thus enacts how, for Merleau-Ponty, our consciousness is inseparable from our perceptual relationship to the world, that perception is not a transcendental act, but an interpretation of bodily stimuli. This nightmarish scenario in the capsule underscores the importance of the perception of our own being as embodied: that there can be no view from nowhere.[41] Despite setting up a duality between the virtual space of the capsule and the parallel universe of the train, then, the perceptual necessity of embodiment is consistently suggested.

But while even the capsule is not an entirely disembodied world, it is represented as an impoverished and incomplete sensory experience in which Colter is ultimately helpless. In this space, he is not 'liberated' from the confines of his body, but is rather trapped

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[39] Ibid., 59.
[40] Ibid.
[41] *Phenomenology of Perception*, 60–61.

within an even more restrictive set of confines. In this context, Colter's realisation that his body is elsewhere, disconnected from his mind, is not liberatory but traumatic. After a particularly distressing experience aboard the train, Colter re-enters the capsule which, as a manifestation of his tortured mind, has begun to malfunction. Through darkness, we see POV shots of the control panel – which appears smaller than before. The tiny screen shows a flickering circuit board in place of Goodwin's image. As he cries out to her, the sequence cuts to shots from within the lab where Goodwin's monitor displays Colter's vital signs along with a persistent and ominous beeping. Within his imagined cockpit, Colter tries in vain to open the door and free himself. He leafs frantically through a manual, rummages through a tool set and hammers futilely on the capsule window. As the monitor gradually flickers to life, Colter sees Dr Rutledge – inventor of the Source Code – onscreen. The virtual nature of the capsule space is emphasised here, where in desperation Colter shouts "The capsule's lost power". Baffled, Rutledge replies: "The capsule? Is that where you are right now Captain? In a capsule?"

Unlike in the scenes aboard the train, all of Colter's intentional actions within this space are inconsequential, immaterial. While both spaces are digitally mediated, it is only when he is embodied within a material (yet still mediated) space – the train – that Colter can effectively act upon and substantiate his knowledge through meaningful action. The capsule sequences thus paint a negative picture of the Cartesian interiority or 'liberation' from the body associated with some earlier conceptions of digital being. This 'mind-space' is subordinated to the still-technologized and yet 'real' spaces of the parallel universes – which can be felt, tasted and explored. *Source Code*'s representation of different diegetic spaces thus works to assert the embodied (corporal and conscious) contingency of always-already mediated experience.

Despite the aesthetic and conceptual alterity between train and capsule, then, *Source Code* emphasises the fundamental endurance of intersubjectivity in all forms of (mediated) experience. Towards the end it is revealed that Colter's contact with Goodwin (via the capsule) has been entirely virtual: that all along she has been interfacing with the text-based translation of his thoughts on a monitor. As Jones muses, "[o]ur generation is probably the first generation who would believe that you could have a relationship like this, purely based on text."[42] Colter is able to develop a mutually beneficial, empathetic and trusting relationship with Goodwin through their shared impetus to save lives in their respective 'real' worlds. Even when he discovers that the capsule is immaterial, his knowledge that

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[42] 'Commentary', 01:04:12,

their intersubjective interactions have real worldly impacts perpetuates his acceptance of his existence as 'actual'. *Source Code* thus foregrounds how, as Hesselberth notes, 'regardless of the scale of (technological) mediation involved, each perceived environment is always actual from the point of view of the person or persons observing it, "here".[43]

For Hesselberth, Colter 'does not so much observe *via* Source Code but rather *as* source code'.[44] However, the idea that all of Colter's experience is reducible to the program itself is problematic, particularly when read in relation to the film's ending. On the moment at which Colter's communication with Goodwin is revealed as text-based, Hesselberth asserts,

> [w]hatever we have watched him 'see' up until then (his presence in the capsule and on the train, the audio-tracks and pattern recognition program, the news footage that is fed to him, the image-feed of Goodwin's presence at Beleaguered Castle), all is observable to him only as uploaded data, as algorithm. His entire perceptible existence is source code.[45]

But while Colter's entire existence up to this point has been mediated in different ways, his presence on the train is *enabled* but not *constituted* by the Source Code link. Moreover, it is difficult to ignore the film's impetus to eventually liberate Colter from this mediation. In the end, Colter succeeds in identifying the bomber – albeit too late to prevent the explosion within that particular parallel world. At his request, Goodwin defies her superiors and grants Colter the chance to enter the Source Code one last time, to prevent the explosion and save the day. On completing his mission, the elapse of his final eight minutes is marked by a freeze-framed kiss with Christina. As Colter and the other characters are frozen in apparent perpetuity, this image of Colter's 'end' evokes the stillness and finality of a photograph. However, the shot quickly reveals itself as a digital image, as gradually the virtual camera tracks outwards through space from the epicentre of their kiss. The resulting perspective shift makes Colter, Christina and the surrounding passengers appear not photographically frozen, but vital and alive. This hinted promise of continuity is realised when, presently, the duration of the scene is restored. As Jones explains,

> In the very last version of the Source Code where he's sent off to what is supposed to be a heroic death, that tenuous link [to the Source Code program] is severed and he actually exists in that parallel reality.[46]

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[43] 'From subject-effect to presence-effect', 251.
[44] Ibid., 261.
[45] Ibid., 261-262.
[46] 'Source Code: Interview with Duncan Jones'.

Although Colter's link to the Source Code has been severed, nothing else about his existence in this world has changed. It appears that when Colter finally believes that he 'belongs' in this reality, as a subject among others, he remains embodied in it. In this final reality, the train did not explode, and so did not trigger the subsequent chain of events – Beleagured Castle facility never mobilised Colter in the Source Code, and so the wounded Colter remains in the life-support pod. After he is severed from the Source Code program, he is not in a new, or more 'authentic' type of space, but in the very same reality that the Source Code allowed him to enter. Thus, until the last, *Source Code* undermines closed distinctions between mediated and 'unmediated' reality.

Source Code **as Complex Narrative**

Source Code's mobilisation of complex narrative is tightly bound up with its reflexive use of digital and analogue aesthetics, and its meditation on the modalities of cinema and other media. Bordwell has considered *Source Code* in terms of existing narrative precursors, asserting that plot 'moves us into a parallel world characteristic of forking-path plots like *Run Lola Run* and *The Butterfly Effect* (2004).'[47] In analysing the film's ending, he also points to a broader trope of folk-psychology which legitimates counterfactual thinking – a tendency to create hypothetical alternatives to the status quo based on different outcomes of past events.

> Given the right sort of motivation… the forking-path option can be activated as a resolution device for multiple-draft plots… More important, we're prepared to accept such a switch on pretty slender evidence. Counterfactual thinking in terms of forking paths is a part of our folk psychology. *If only we'd left the parking lot ten minutes earlier, we wouldn't have hit this traffic. If I hadn't taken this job, I wouldn't have met my husband*… and so on.[48]

For Bordwell, 'the very premise of the replay device, plus Colter's raising the issue of forking paths with Goodwin, plus our commonsense psychology, plus the swooshes, plus the convention of the happy wrapup, not to mention the overall urge to reward our hero for all his sacrifice – all this is enough to push the ending over the finish line.'[49] While Bordwell's well-justified and thorough reading accounts for the extent to which popular

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[47] 'Forking Tracks'. For further analysis of how *Run, Lola, Run* reads as a reflexive response to the digitalisation of cinema, see for example I. Majer O'Sickey, 'Whatever Lola Wants, Lola Gets (Or Does She?) Time and Desire in Tom Tykwer's Run Lola Run' in *Quarterly Review of Film and Video*, vol. 19, no. 2 (2002), 123-131.
[48] 'Forking Tracks'.
[49] Ibid.

cinema audiences are given to the suspension of disbelief, however, it elides both the film's narrative-aesthetic imbrication and its knowing evocations of contemporary media experience.

Michael J. Blouin similarly interprets *Source Code* as emblematic of a particularly inward-looking form of cinematic reflexivity. He notes in particular that films have grown increasingly repetitive in the postmodern age, and as such the spectator is 'subjected to endless sameness and trained to recognize arbitrary signifiers.' Just like how Colter repeats the same eight minutes ad nauseum, Blouin remarks, '[t]he industry likewise churns out films… to "blow them up" for the purpose of selling more products.' This narrative-industrial cycle, he notes, 'relies upon the individual's compliance within the schema', and so spectators, via Colter, 'find no alternative but to seek a resolution that will please authority figures.'[50] Yet the balance of authoritative power in *Source Code* does not remain consistent, but is highly open to ambiguities which challenge the concept of industry as the film's central and ineffable extradiegetic authority. For Blouin, Rutledge operates as 'a face for the film industry,' who 'requires the repetition of virtual experience to be harnessed for his group's profit… while concurrently maintaining Stevens' desire for a genuine resolution.'[51]

Looking more closely, however, this is less than straightforward. After Rutledge explains the nature of the program, Colter asks what happens after the eight minutes. "After?" Rutledge scoffs, "Nothing. You cease to exist on the train. You cannot exist inside the Source Code beyond Fentress' eight minutes. Source Code is not time travel. Rather, Source Code is time reassignment. It gives us access to a parallel reality." By the logic espoused by Rutledge, the film's ending is an impossibility. Colter's resistance to his (and the film's) established authority comes in the form of an unexplained continuation of the eight-minute slice of life he has assumed, which produces a 'magical' fissure from the rules of the game, as set out by Rutledge. While this trope of ostensibly irrational posthumous existence is a pre-existing fictive tradition in cinema, for example in Powell and Pressburger's 1946 wartime fantasy *A Matter of Life and Death* (not to mention other media), its situation in a speculative SF narrative both engenders a critical understanding of the mechanics of the narrative – or, the science of the fiction – itself, while legitimising the possibility that Rutledge is wrong.

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[50] M. J. Blouin, 'Tarrying with Sublimity: The Limits of Cinematic Form in Duncan Jones' *Source Code*' in T. A. Comer and L. I. Vayo (eds.), *Terror and the Cinematic Sublime: Essays on Violence and the Unpresentable in Post-9/11 Films* (Jefferson, NC: McFarland & Company, 2013), 108.
[51] Ibid.

The 'authority' of *Source Code*'s narrative, and by extension the authority of popular cinema as an industrial form of representation, is moreover complicated by the film's open-endedness: its refusal to provide an authoritative explanation of the ending. On one hand of course, this testifies to the impetus for popular film to appeal broadly – and so those viewers irked by the sparseness of science might feel encouraged to access the more traditional heterosexual love story. As Jones enthuses, "[a]t the end of the film, if half the audience comes away satisfied with the love story and the experience of the action, and the other half are baffling over the ending but enjoying trying to work out the ending, then I'll be very satisfied."[52] On the other hand, it signals the impetus for open-endedness and narrative complexity which offers a distinct, optional pleasure – to engage with the meaning of the film extradiegetically. As Thomas Austin notes, such a strategy allows a film 'to achieve commercial, cultural and social reach by both facilitating, and benefiting from, promotional and conversational processes of fragmentation, elaboration and diffusion'.[53]

Thus it is also important to account for how extradiegetic convergent media intensely collude with *Source Code*'s internal narrative open-endedness. If the ending is found unsatisfactory, there is a wealth of supplementary material on the DVD, including video segments on the memory training techniques used on Colter, quantum physics, many worlds theory, brain-computer interfaces and the history of military use of VR.[54] Such content fosters a questioning, critical response to the premise of the film, which appeals to the authority of the scientist in addition to that of the filmmaker. The presence of this kind of convergent media, now commonplace on blockbuster DVD releases, allows *Source Code* to dodge or displace straightforward narrative questions about, for example, what happens to Sean Fentress, or why exactly Colter's eight minutes of life were able to continue. These give way to questions about the possibility of the fictional technologies, questions which act to extend the narrative beyond itself and into the realm of further extrapolation and extradiegetic discovery. Beyond DVD features, viewers may take to online message boards, or access articles which address the film's (pseudo)science, such as features in the *LA Times*,[55] *Chicago Examiner*[56] and *Discover*,[57] in which neuroscience and physics professors such

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[52] 'Cast and Crew Insights' on *Source Code* (DVD), 24:28.
[53] T. Austin, *Hollywood, Hype and Audiences* (Manchester: Manchester University Press, 2002), 29. See also B. Klinger, 'Digressions at the Cinema: Commodification and Reception in Mass Culture' in J. Naremore and P. Brantlinger (eds.), *Modernity and Mass Culture* (Bloomington, IN, and Indianapolis: Indiana University Press, 1991). In television studies, Matt Hills has also applied this concept to the *Dr Who* universe; see M. Hills, 'The Dispersible Television Text: Theorising Moments of the New *Dr Who*' in *Science Fiction Film and Television*, vol. 1, no. 1 (Spring 2008), 25-44.
[54] See 'Focal Points' on *Source Code* (DVD).
[55] See P. K. Day, "Limitless' and 'Source Code' science not as outlandish as you'd think' in *LA Times*

as Charles M. Higgins and Sergei Gerkov are interviewed about concepts touched on in the film – such as neural interfaces and emergent space-time. This wealth of convergent material is reflective of how cinematic narrative, in the contemporary hyper-connected world, extends beyond the diegetic, accumulating meaning through a perpetual process of discursive interactivity.

Navarro-Remesal and García Catalán present a compelling reading of *Source Code* as a self-reflexive deconstruction of generic SF tropes. Colter's critical scrutiny of the train-world, they note, is redolent of how 'the viewer analyses postmodern films'. Colter comments on the plausibility of the situation, for instance where he tells Christina that she is the "pretty girl" and that "there is always one". When he states that "they" would not put his target directly in front of him, his reference to 'some unknown demiurges behind everything' seems 'as if he were wondering about his story's author.' His questioning of reality 'as a constructed, archetypal fiction' reaches the extent of breaking the fourth wall, such as when he punches a passenger before stating, "It's OK – he's no more real than you are." Such elements lead the authors to conclude that *Source Code* 'is not only a genre piece, but also a deconstruction of the genre tropes.'[58] Indeed, when Colter remarks that all simulations have a beautiful woman, it gradually becomes clear that what he might have said is "all movies have one". This line reads as a playfully reflexive acknowledgement of conventional romantic subplot that the film itself indulges in. *Source Code* thus constitutes a simultaneous continuation and remediation of science-fictional and cinematic tropes, in response to how the meta-fictional – often associated with new media – has become a naturalised aspect of narrative cinema.

Conversely, Hamish Ford considers that the temporal tricks of contemporary cinemas (of Hollywood and elsewhere) serve to highlight, more than to challenge, their narrative conservatism. While he cites a 'gradual but undeniable increase' in films – such as *Memento* (Nolan, 2000) – which foreground time both thematically and aesthetically, and play with non-linear narrative structures, he considers that 'for all their avowed interest in memory and disabling temporal effects… [such films] still carefully control time's impact

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(01/04/2011) [available at http://herocomplex.latimes.com/movies/limitless-and-source-code-science-not-as-outlandish-as-youd-think/, accessed 13/10/2015].

[56] See B. J. Adams, 'Filmed in Chicago, Movie "Source Code" Poses Some Uncomfortable Questions' in *Chicago Examiner* (02/04/2011) [http://www.examiner.com/article/filmed-chicago-movie-source-code-poses-some-uncomfortable-questions, accessed 13/10/2015].

[57] See V. Ross, 'The Neuroscience of "Source Code": Mind Your Brain, Soldier' in *Discover* (06/04/2011) [available at http://blogs.discovermagazine.com/sciencenotfiction/2011/04/06/the-neuroscience-of-source-code-mind-your-brain-soldier/, accessed 13/10/2015].

[58] *Time Travel in Popular Media*, 216.

to the extent required of a still-sacred narrative.'[59] Primarily, for Ford, these complex narratives 'come across as jigsaw puzzles to be put into correct linear order by the viewer-detective', and are ultimately contained within neat narrative resolution.[60] Thus what might be considered an implicitly ludic dimension ultimately serves to reinforce the dominance of narrative progression through individual action, and '[s]oon enough, and certainly well before the end of the film, 'post-classical' Hollywood films typically work to retain and ultimately reinforce strict adherence to narrative movement thanks to fundamentally restorative protagonistic action.'[61] Cubitt similarly sees *Source Code* and *The Matrix* as producing equivalent, narratively conservative fantasies of protagonistic empowerment and agency.

> It is not difficult to recognise here a common attribute of Hollywood narrative: its conviction that individuals are the only moral agents and… that individual actions matter to the extent that the whole world can be rewritten on the basis of one person's acts and that this can be morally justifiable.[62]

Ostensibly, like Neo in *The Matrix*, Colter's active agency is contingent upon his *realisation of the power* he wields over the world around him, in a trope which evokes both the interactivity of digital media experience and the ultimate power of the Hollywood film protagonist.

However, it is important to note that this kind of protagonistic moral agency and empowerment is not specifically 'cinematic', but is a common attribute of most Western media narratives, from literature to video games. Moreover, 'restorative protagonistic action' or individualism, rather than being an end in itself, is mobilised in highly reflexive and specific way in *Source Code*. Colter's mastery over the diegetic world is significantly limited; he is able to transcend the usual constraints of time's flow, but only within a finite margin. Unlike in *The Matrix*, Colter does not discover his power through the realisation that his surroundings are virtual and therefore largely malleable (in fact this assumption sidetracks Colter earlier on), but through the increased perceptual knowledge he attains simply through 'being' in this reality, and apprehending the contingency between perceiver and perceived, the impact of his actions upon others.

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[59] H. Ford, *Post-War Modernist Cinema and Philosophy: Confronting Negativity and Time* (New York: Palgrave Macmillan, 2012), 7.
[60] Ibid.
[61] Ibid.
[62] S. Cubitt, 'Source Code: Eco-Criticism and Subjectivity' in C. Vernallis, A. Herzog and J. Richardson (eds.), *The Oxford Handbook of Sound and Image in Digital Media* (Oxford: Oxford University Press, 2013), 486-487.

Situating *Source Code* within a category which he calls 'Irreality' films, Cubitt also identifies a key difference between *Source Code* and *The Matrix*, in that '*Source Code* does not seem to propose a synonym ("the world is like a movie"), but a metaphor ("the world is a movie"), in which case a second inference becomes apparent. The coded world must be coded by someone. By the same token, what is written can be rewritten.'[63] While *The Matrix* produces a hyperbolic fantasy of mastery over the virtual, coded environment, however, *Source Code* presents its protagonist as more confined, more limited by the bounds of the diegetic technology and of the narrative itself. From the outset, Colter is trapped within a particular narrative circuitry – and one which he, like the viewer, must decode in order to effectively negotiate. Beyond individual empowerment– and indeed what mobilises it and makes it compelling – is a particular set of diegetic rules, which are not unproblematically in thrall to the power of the individual, but which work to mediate and contain narrative meaning.

Source Code's established diegetic rules are ultimately overcome not simply through Colter's agency, but through a reflexive and knowing impetus for closure. While Colter is certainly motivated to find resolution, the ending is contingent not only upon his action but on an unexplained and fantastical occurrence – a kind of cinematic *deus ex machina*. After the freeze-framed kiss, which marks the severance of Colter's link to the Source Code (and the end of his control over the parallel universe), the subsequent epilogue is a playfully irrational denial of the film's own rules: a speculative twist which emphasises the pleasures of cinematic resolution. The oft-repeated phrase between Colter and Christina – "everything is going to be OK" – reflexively underscores the film's reassurance that, ultimately, this experience will be contained. While Colter's perceived protagonistic power is often seen as evidence of a conservative adherence to classical cinematic paradigms, then, *Source Code* is a fantasy of *limited* protagonistic mastery. This, and the ultimate triumph of a (problematic) resolution both challenge and affirm cinematic convention, forming one of the ways in which *Source Code* appropriates, mediates and contains the liberatory potential of digital engagements.

Colter's 'happily ever after' thus evokes not only a cinematic resolution, but the realisation of a specifically digital fantasy. Jasmina Kallay identifies the connection between the deferral of death in *Source Code*'s narrative and a fantasied idea that digital technology could offer 'the promise or the lure of immortality'. In this case, she continues, 'we no longer require narratives that deal with death/endings, but instead we wish to probe the

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[63] Ibid., 486.

possibilities of a digitally endless existence.'[64] In particular, since mediation becomes the means for Colter to attain an 'extra life', it does not seem a stretch to attribute the appearance and acceptability of this ending partially to a cinematic negotiation of the conventions of video gaming.

Source Code's mediation of trauma in particular reads as allusive of gaming, in which widely accepted convention allows characters to die, and come back to life, to replay a level time and again. *Source Code*'s mobilisation of this trope in the cinematic context induces a reflexively productive suspension of narrative danger. Special effects depicting violence or trauma are most usually linked to – and intensified by – the suggestion of mortal risk. As McClean notes, '[m]any effects are used to heighten [a] sense of threat and exaggerate the closeness of the hero's brush with death.'[65] By suspending the finality of death, *Source Code* approximates ludic experience in order to allow its central traumatic event to be examined from a variety of positions through different spectacular presentations. As Jones recalls:

> I wanted to show the repetition of the explosion from different perspectives… Colter was in a very different mindset each time, so visually each event had a very different feel. As Colter starts to generate his relationship with Christina, he's quite mournful and there is a sense of loss during what we called the 'poetic explosion.' We played that in slow motion, showing the fireball traveling towards Colter and Christina with a very beautiful look and feel. Then we had some later explosions where Colter is almost being tortured, which were quite nightmarish and aggressive.[66]

This various use of poetic or descriptive spectacle evokes the replayability of games and other media in the contemporary cultural moment. Through the increased ease of repeating, pausing and rewatching of moments that DVD brought, the repetitive structure of video games, and the quick availability and rewatchability of snippet media online, it is easier than ever to revisit and repeat media experiences, which perpetually produce subtly different experiences. *Source Code*'s repetition of spectacular and emotional events offers a narrative experience which transcends the usual phenomenal limitations of cinematic narrative – which generally shows us events once, from one particular perspective. While of course *Source Code* is limited by the bounds of cinematic form, this kind of affective repetition reflexively demonstrates the ways in which digital media interactivity can reshape cinematic address.

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[64] J. Kallay, *Gaming Film: How Games are Reshaping Contemporary Cinema* (New York: Palgrave Macmillan 2013), 64.
[65] *Digital Storytelling*, 160.
[66] 'Reality Deconstructed', 54-55.

Despite *Source Code*'s approximation of these experiences, it is possible to overstate the connection between its narrative and the paradigms of gaming, particularly at the level of emotional affect. Richard Misek interprets the Source Code program as 'a technology that allows characters to "replay" the experiences of other characters, as if in an immersive videogame.'[67] Buckland offers a similar interpretation of *Source Code*'s allusions to gaming. For Buckland, the train is 'a closed space with limited freedom of movement', in which 'we see Colter moving around the game space and interacting with it via his avatar.'[68] Buckland and Misek's responses are a testament to the ambiguous ontological nature of this space, and the other spaces, at least at the film's outset. Like Jake in *Avatar*, Colter undergoes a phase in which he treats his body something akin to a 'game body'. In Colter's initial voiced belief that he is 'replaying' a scenario, or game-like simulation, his actions are informed by a sense of frivolous inconsequentiality.

But when Colter becomes convinced of the integrity of the parallel worlds, everything seems to matter. Suddenly, he is not 'replaying', but 'reliving'. As the narrative develops, we begin to realise that this is not a diegetic 'game space' but a (no less real) parallel world: that Colter is not confined to the train itself (in fact he disembarks on three separate occasions), and that he is not an 'avatar' but the actual body of another man (who ultimately becomes *himself*). Like *Avatar* before it, *Source Code* calls attention to the slippery contingency of 'avatar' as a concept as well as the sensory limitations of contemporary avatar engagement. Robert Farrow and Ioanna Iacovides underscore this difference between embodiment and its representation in virtual environments, stating that while playing video games 'we tend not to care too much about dying and we do not experience pain through our avatar: these phenomena are experienced as representation, not as subjective experience.'[69] Conversely, Colter is not straightforwardly 'replaying' the experience of another character, he is *actually reliving* it. As an embodied, worldly agent, he retains his own sense of identity and moral obligation – realising that, within the diegetic reality, the passengers aboard the train are real people; unlike Colter, they do not have multiple 'lives', but die within each parallel universe as the train explodes.

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[67] R. Misek, 'Modular Spacetime in the "Intelligent" Blockbuster: Inception and Source Code' in W. Buckland (ed.), *Hollywood Puzzle Films* (New York: Routledge, 2014), 111.
[68] W. Buckland, '*Source Code*'s Video Game Logic' in ibid., 193.
[69] R. Farrow and I. Iacovides, "In the game'? Embodied subjectivity in gaming environments' in *6th International Conference on the Philosophy of Computer Games: the Nature of Player Experience*, Madrid, Spain (29-31 January 2012) [available at http://oro.open.ac.uk/33357/1/82-Farrow-Iacovides_FINAL.pdf, accessed 12/02/2015], 5.

By distinguishing between fully embodied (the train) and disembodied (the capsule) forms of imagined mediation, *Source Code* underlines the fact that primordial embodiment is always ontologically and epistemologically *prior to* mediated experiences. Exploring the aesthetic convergence between the cinematic body and the game body, Timothy Crick states that 'like our lived phenomenological experience, roaming a virtual game world is a fully embodied, sensuous, carnal activity.'[70] However, while all mediated experience is of course fully embodied (unlike in VR fantasies, media do not disconnect us from our bodies), we do not relate to digital bodies such as avatars, or indeed to cinematic bodies, in the same way that we relate to our own corporeality. As if in response to the limitations of gaming and avatar embodiment, *Source Code* produces a narrative premise in which, as in the VR film, the intrinsic disconnect between avatar and embodied being is overcome. For Farrow and Iacovides, deeper immersion in games comes primarily from the embodied integration of the interface.[71] While, in the capsule, Colter is trapped within an expansive interface, when he is re-embodied as Sean the interface completely disappears so that his experience is fully embodied, sensuous and carnal. Through narrative identification and spectacular cinematic affect, this is a fantasy in which the spectator, too, is invited to indulge.

As a reflexive example of complex narrative cinema, *Source Code* illustrates how 'the increasing prevalence of open-ended structures can be interpreted as a reflection of the underpinning open network structures that we access and use on a daily basis online.'[72] *Source Code*'s narrative moreover resonates with shifting conceptions of time, memory and history brought about by digital media. As D. L. LeMahieu argues, the endurance of real world events as 'digital memories' means that '[h]istorical discourse will become increasingly an immersive, multi-sensory activity… relived in ways that traditional written narratives could never capture'.[73] For LeMahieu, the expansion of media technology 'narrows the distinction between spectatorship and lived experience'[74] so that the 'past will feel present in a way never before possible.'[75] This closely evokes the rules of the Source Code program – in which Colter 'lives' history. As Colter repeatedly experiences the last eight minutes of Sean's life, the past loses its sense of resolute immutability and becomes

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[70] T. Crick, 'The Game Body: Toward a Phenomenology of Contemporary Video Gaming' in *Games and Culture*, vol. 6, no. 3 (2011), 267.
[71] "In the game'?', 6-7.
[72] *Gaming Film*, 64.
[73] D. L. LeMahieu, 'Digital Memory, Moving Images, and the Absorption of Historical Experience' in *Film & History: An Interdisciplinary Journal*, vol. 41, no.1 (Spring 2011), 82.
[74] Ibid., 83.
[75] Ibid., 82.

present, palpable and interactive. In fact the past becomes so 'present' for Colter that, every time he fails his mission, he wakes up increasingly shaken by the experience of dying, and of watching the people around him die. Moreover, Colter is connected to the subject of this past experience to the extent that he eventually assimilates Sean's personhood as an extension of his own. This ethically dubious assumption (or consumption) of Sean's lived identity evokes the ways in which contemporary media histories – such as news events – increasingly assume the form of subjective spectacles rather than distanced and disconnected, objective events. Through its depiction of a series of parallel histories, *Source Code* thus comments upon how the information age has inaugurated a postmodern sense of the spatiotemporal – characterised by an enfolding of past, present and future, and a conception of 'elsewhere' as hyperbolically present.

Conclusion

Source Code's close engagement with digital mediation makes a compelling case against overemphasising the relation of complex narrative cinema to 'cinematic' paradigms. Its various challenges and adherences to elements which can be considered specifically 'cinematic' in fact work to evoke and comment upon the myriad forms of mediated experience which cinema today seeks to address, adapt and assimilate. An emphasis on the ostensibly conservative elements of *Source Code*'s narrative thus risks eliding the film's reflexive negotiation of the impacts of digital mediation on phenomenological experience and cinematic narrative. While it is illuminating to read *Source Code* in relation to classical Hollywood storytelling, and in terms of its general conformity with models of contemporary 'complex' narrative cinema, many accounts seem incomplete or self-limited by disavowing how digital media colludes in the reshaping of popular cinematic modes.

As Edward Wesp points out, there is a tendency within game studies to dichotomise the narrative and aesthetic similarities between these and other media forms, such as cinema. Consequently, 'formal similarities in the means by which videogames and other media present narrative are denigrated in favor of a view that contrasts videogames' hybrid ludo-narrative complexity against the operation of more inherently "narrative" media.'[76] Indeed, other media – and contemporary games in particular – are increasingly driven by and subject to particular narrative expectations. A salient example of this

[76] E. Wesp, 'A Too-Coherent World: Game Studies and the Myth of "Narrative" Media' in *Game Studies*, vol. 14, no. 2 (December 2014) [available at http://gamestudies.org/1402/articles/wesp, accessed 7/11/2015], no pagination.

phenomenon is the backlash against the ending of Bioware's *Mass Effect 3* amongst fans of the series.[77] Rather than attributing *Source Code*'s particular ending to a specifically 'cinematic' form of conservatism, I have similarly sought to demonstrate the importance of multimedia influence and imbrication to contemporary cinematic reformulations of narrative. Wesp promotes a 'greater openness to the ways in which videogames are actually like other media' in order to 'inspire the pursuit of meaning in quintessentially game-like structures that initially seem to disrupt narrative.'[78] Concurrently, I suggest that an openness to the ways in which cinema is like other media helps shed light on the diegetic and extradiegetic meanings which particular films express, and how elements widely considered to disrupt or exceed narrative actually help to break and rebuild its codes. As John Mullarkey notes, '[t]oday's technological convergences with telecasting, the computer, the internet, video games, and other digital media need not be taken as a sign of the dissolution of film's own identity so much as the revaluation of its transformative essence.'[79] As a particular manifestation of complex narrative, *Source Code* reads as emblematic of Hollywood cinema's broader response to challenges posed by digital technology, by simultaneously embracing the digital and individuating cinema as a distinctive experience. While *Source Code* ultimately asserts itself as exemplary of the perpetual pleasures of cinema, this process does not read as an uncomplicated subjugation of one medium by another, or as a triumph of narrative conservatism over experimentation. Rather, *Source Code*'s adherence to cinematic tradition is matched by its progressive remediation of narrative convention.

In keeping with the objectives of this thesis as a whole, I have moreover underlined the contingency of these processes on *Source Code*'s use of both analogue and digital visual effects. Punctuated by Christina's repeated question "Am I on the right track?", *Source Code* fosters an interrogative relation to its narrative web, and an awareness of how its aesthetic regime can help to untangle it. While the film's science-fictional mandate to present extrapolative or allegorical technologies would legitimate the use of more ostentatious digital images, *Source Code*'s carefully authored balance of digital and classically cinematic imagery works to undermine distinctions between cinema and digital, real and virtual,

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[77] Kyle Orland reports that a Facebook Group titled 'Demand a Better Ending for Mass Effect 3' garnered over 13500 likes as of the date of publication. See K. Orland, 'Protests over ending of Mass Effect 3 show fan investment in story control' on ArtsTechnica.com, (12/03/2012) [available at http://arstechnica.com/gaming/2012/03/protests-over-ending-of-mass-effect-3-show-fan-investment-in-story-control/, accessed 15/11/2015].

[78] 'A Too-Coherent World'.

[79] J. Mullarkey, *Refractions of Reality. Philosophy and The Moving Image* (Basingstoke: Palgrave Macmillan, 2009), xiv.

embodiment and mediation. Taking up Dan North's point that the study of early cinema has often been defined by a false dichotomy between fantasy and realism,[80] Prince points out that this is still often the case in approaches to contemporary films, particularly those which employ digital visual effects.

> Realism and fantasy are taken as oppositional modes… Spectacle is taken as being antithetical to narrative. The digital counters the analog and the indexical. Humanly crafted visual images contrast with computer generated images. These dichotomies have impeded our ability to see visual effects as a modality of cinema rather than as a peripheral one that supplements the filming of live action.[81]

Through the use of aesthetic techniques which are variously intrusive and indiscernible, analogue and digital, *Source Code* presents a world which erects and then challenges dichotomies between fantasy and reality. In its remedial assumption of the VR subgenre's key concerns, *Source Code* plays on assumptions and ambiguities about the authenticity of mediated experience in ways which allude to the contemporary inseparability of reality and mediation. *Source Code*'s extrapolative fantasy of impossible technological immediacy refracts how the analogue and the indexical, the digital and the cinematic discreetly and ubiquitously inflect our perceptual acceptance of what is phenomenologically and morally significant, and what constitutes the contemporary 'real' that cinema enduringly seeks to represent.

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[80] See D. North, cited in *Digital Visual Effects in Cinema*, 222.
[81] Ibid.

Conclusion

This study has highlighted how VR and Post-VR cinema poses a particularly strong challenge to the dichotomisation of spectacle and narrative in approaches to popular cinema. My analysis has moreover extended to how these films variously challenge other, often interrelated dichotomies – between mind and body, affect and cognition, immersion and reflection, real and virtual, cinema and the digital. My central focus on narrative-aesthetic imbrication has brought into relief the subgenre's special propensity to express central themes, obsessions and anxieties through special effects *even as* they provoke astonishment and wonder. For all its internal diversity, I have demonstrated that the subgenre is united in terms of how its basic premise contradicts, and shows as intrinsically untenable, the idea that affective spectacular special effects arrest or subordinate narrative. I have moreover traced how VR and Post-VR films refract and enact cinema's complex process of digital transubstantiation, addressing (and producing) differently mediated spectators at their respective contemporary moments through appeals to the material and existential modalities of an increasingly digitally mediated everyday.

This thesis both advocates and complicates genre (or subgenre) as an approach to classifying and studying films. An emphasis on how (SF) genre generates certain expectations has been instrumental in my project to connect text and context. As Andrew Tudor observes, genre is 'what we collectively believe it to be', which makes it an invaluable approach to 'the exploration of the psychological and sociological interplay between filmmaker, film, and audience'.[1] Notwithstanding that the genre is comprised of multivalent and often vague archetypal elements which are perpetually in flux – and moreover that many films exhibit pronounced generic hybridity – it remains that to watch an SF film is to expect a particular kind of experience. SF elicits an understanding that technology is central, significant and, particularly in the case of special-effects-driven SF cinema, likely to be visible in its construction. As Grant notes:

> [W]e should remember that the element of "wonder" in science fiction means not only to be astonished, to regard with awe, but also to be curious, to desire to know or learn. When we contemplate an idea, we wonder about it.[2]

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[1] A. Tudor, 'Genre' in B. K. Grant (ed.), *Film Genre Reader IV* (Austin: University of Texas Press, 2012), 7.
[2] B. K. Grant, 'Adventures in Perception: Endangering the Spectator in Science Fiction Cinema' in S. Redmond and L. Marvell (eds.), *Endangering Science Fiction Film* (London: Routledge, 2013), 113.

SF's particular propensity to provoke this relation of thoughtful wonder is intrinsic to an understanding of how cinematic SF operates – where diegesis, production context, and the act of viewing itself are all imbricated. In VR and Post-VR cinema's (re)presentations of digitally realised experiences, which are diegetically and extradiegetically excised from the quotidian real, spectacular moments starkly foreground their technologies of production. Their SFX opens an interrogative relation to the audio-image which supports and colludes with their science-fictional narratives rather than suspending or contradicting them.

Since SF cinema is of course a vast and morphing landscape – of which I have examined a small and specific subgeneric group – I have avoided making broad assertions about the genre (and indeed popular Hollywood cinema) as a whole. In a project of this scope at least, an attempt to make claims about SF beyond this particular subgenre would be unsupportable, and at risk of producing problematically prescriptive, generalising or tenuously evidenced responses. However, while the sustained and specific analysis of relatively few films does not lend itself to extrapolative claims, I suggest that my methodological approach can productively extend to how a range of SF and other SFX-driven popular cinemas induce immersion and reflection, cognition and affect, and can be brought to bear on existing approaches which elide or neglect textual specificity to variously problematic ends.

Closer to home, moreover, my selected sample of films in no way exhausts cinematic representations of VR, and there is a great deal more to this particular subgenre than I have had space to explore here. Given my focus on popular Hollywood examples, and my proclivity for sustained close analysis, it has been regrettable yet necessary to omit, for example, the myriad non-Hollywood VR films which emerged around the turn of the century. Gabriele Salvatores' *Nirvana* (1997), Alejandro Amenábar's *Abre los ojos* (1997), Cronenberg's *eXistenZ* (1999) and Mamoru Oshii's *Avalon* (2001), for instance, provoke fascinating challenges to the Hollywood VR imaginary which deserve the same level of attention. My remit to explore how virtual spaces have been represented also means that I have omitted certain Hollywood examples which do not engage with VR in a sustained way (*Disclosure*, *Vanilla Sky*), or which situate their action largely outside of the diegetic virtual realm (the *Matrix* sequels, *Virtuosity*). Despite these omissions, my chosen films nevertheless constitute the vast majority of Hollywood VR films. They demonstrate the aesthetic and conceptual eclecticism with which digital spaces have been represented over three decades of technological, industrial and cultural change, and moreover signal broader shifts in the ways in which Hollywood cinema production, distribution and exhibition have

morphed since the early 1980s in relation to the inception and dissemination of various digital media technologies.

As a cornerstone of my close reading strategy, I have used phenomenological analysis both to illuminate how these films instantiate and reflect upon the multisensory appeals of technology, and to suspend paradigmatic assumptions about the narrative and spectacular functions of film aesthetics. While it is important to note the intrinsic limitations of subjective phenomenological impressions, my detailed and sustained close reading strategy has, I hope, carved out a well evidenced interpretation of how these films elicit and reward particular responses. Paying attention to how film offers certain embodied interactions while precluding others, I assert, is central to an understanding of the medium's vicissitudes, from its affective elicitations of new media experience to its enduring appeal as a collectively shared experience (whether in the theatre or online). It is thus important to emphasise the productive value, as well as the unavoidability, of embodied and subjective responses in any approach to cinema.

By using phenomenology as a means of uncovering the narrative functions of special effects, I have disrupted the prevalent assumption that VR and other SF films tend to advocate a philosophy of mind-over-matter, upending the idea that their ostensibly 'Cartesian' narratives are in any way opposed to the affective operations of their special effects sequences. Contrary to such approaches, I have demonstrated that VR and Post-VR films neither depict nor produce experiences in which the body is peripheral or sense experience displaced. Rather, embodiment and affect are central to these films' challenging refigurations of existing narrative-aesthetic paradigms. They underscore the *reciprocity* between technology and the body by producing a relation in which spectator and character share convergent experiences of immersive technological wonders which constantly refigure their embodied-phenomenal relations to the world. The diegetic presentation of constructed realities enhances the narrative function of their SFX – which engender affective and proprioceptive identification with the characters, and often with the film itself. Foregrounding how, as Sobchack notes, 'technology not only differently *mediates* our figurations of bodily existence but also *constitutes* them',[3] their corporeal appeals lay bare for contemplation the shifting material and existential modalities of cinema – and life itself – in an increasingly digitally mediated everyday.

Indeed, I have strongly emphasised the importance of situating phenomenological close reading within the extradiegetic context. VR and Post-VR cinema – and indeed

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[3] *Carnal Thoughts*, 136.

cinema as a whole – addresses us not just as cinematic spectators but as worldly subjects: as intrinsically bodily engaged with cinema and other media phenomena as they continually modulate our embodied relations to the lived world. As Elsaesser and Hagener point out, 'the cinema has always been preoccupied with the body and the senses, but also with matters of life (and death) that extend beyond the individual films and movie theatres into the realms of identity, community and "being-in-the-world".[4] VR and Post-VR cinema bring this into relief as they narrate and instantiate the centrality of the body in all forms of mediated experience, and articulate the increasing embodied intimacy we feel with the media technologies which surround us.

I have demonstrated that an approach which coheres around sustained close reading need not overlook popular cinema's broader contextual significance, and that the microcosmic analysis of particular scenes and techniques (crucially, within narrative context) does not necessarily detract from a consideration of such factors as the confines of industry and the influences of other media. Yet many of the analyses I have critiqued consider spectacular scenes in isolation – as moments of self-contained spectacle which are divorced from narrative – and thus preclude their full significance. VR and Post-VR cinema's allusive, *narrative* responses to a world of increasing (and increasingly convergent) digital mediation lay bare the formal and existential impacts of the digital to spectatorial contemplation. By suspending the idea that spectacle is incompatible with a rarefied sense of narrative 'immersion' and emphasising these films' tightly coalescent diegetic-extradiegetic operations, I have argued that the affective and reflexive impacts of their SFX are not at odds with cinema as an inherently audiovisual narrative experience.

I have also countered a discursive emphasis on the perceived narrative conservatism of these and other Hollywood films which deal with other media technologies in ostensibly technophobic or dystopian ways. Such approaches often elide the extent to which such films variously engage, remediate and promote the modalities of other media. In 1998, Elsaesser observed that the digital is often conceived of less as an actual technology 'than as a "cultural metaphor" of crisis and transition'.[5] Concurrently in VR and Post-VR cinema, the digital operates as a fluid signifier of the transitional flux in which cinema and media have found themselves at different points over the last 35 years. Yet in deploying such a metaphor, I have shown that these films bespeak a medium

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[4] *Film Theory: an Introduction through the Senses*, 185.
[5] T. Elsaesser, 'Digital Cinema: Delivery, Event, Time' in T. Elsaesser and K. Hoffmann (eds.), *Cinema Futures: Cain, Abel or Cable? The Screen Arts in the Digital Age* (Amsterdam: Amsterdam University Press, 1998), 202

engaged less in a crisis of formal identity than in a mutual, exploratory relation to digital media forms. As diverse digital shifts have impacted upon cinematic production, exhibition and spectatorship, and populated the cultural landscape with unprecedented connectivity, abundant convergent media and access to participatory fandom, VR and Post-VR films address, refract and celebrate this influence even as they testify to the endurance of cinema as a culturally relevant form.

During cinema's previous eras of technological transition – sound, colour and widescreen – Rodowick states that 'stark perceptible differences were marketed as the hallmarks of new cinematic experiences [while] today the major studios appear to want the transition of film to digital to be as transparent as possible.'[6] The tendency for cinema to employ digital processes transparently, Rodowick suggests, has to do with the (commercial) impetus to preserve its formal identity. 'For the entertainment industry', he asserts, 'movies must remain movies and without significantly changing their aesthetic identity in crossing platforms.'[7] Yet while VR and Post-VR films often reflexively testify to the endurance of cinema, they simultaneously embody and promote the close coalescence of cinematic and digital media. Although they represent diegetic virtual spaces largely in ways which conform to aesthetic norms (be those based on paradigms of perceptual or camera-realism), their premises legitimise – even demand – the sustained refiguration of established formal practices, and present a particularly strong challenge to the oft-assumed teleological trajectory of CGI towards transparent perceptual realism.

Yet I have been acutely aware of – and resistant to – the risk of overstating the impact of the digital image on the spectator. While it has increasingly been recognised that spectacular digital imagery has become progressively naturalised, accepted and even banal, I have challenged explicit or implicit perceptions of the spectator as awestruck or uncritical even at times when digital special effects were radically new, and where special effects are clearly and consistently foregrounded *as image*. Even in such contexts, they intrinsically operate as part of narrative cinema's formal assemblage, in which display plays a significant role in storytelling and in the production of diegetic verisimilitude. That both character and spectator are faced with novel and spectacular technological wonders allows spectacle to operate as not only presentational, but as representational within the diegetic world. *Tron*, for example purports to represent a fantasied 'real' world beyond the interface, while *The Lawnmower Man* convinces us of its science-fictionality through authoritative allusions to

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[6] *The Virtual Life of Film*, 108-109.
[7] Ibid., 109.

VR as both as a 'proto-real' technology and as a growing cultural imaginary. By presenting fantastical technological experiences which diegetically *exist*, VR and Post-VR cinema suspends the usual connection between representation and the quotidian. They both claim the ability to present cutting-edge audiovisual techniques, and evince an enduring impetus to refract, comment upon and represent our own (shifting and mediated) experience of the world.

While these films often exhibit reflexive resistance to digital modalities at both narrative and aesthetic levels – from *Tron*'s imbrication of the origins of analogue cinema and digital media, to *Strange Days*' analogue presentation of VR, to *Source Code*'s 'cinematic' presentation of digitally mediated experience – they testify to the endurance of cinema not despite, but *because of* the significant (im)material impacts of digital media technologies. While their (re)presentations of VR are often explicitly articulated as cinema, these films also address the viewer as *media*, within an increasingly hybrid and convergent landscape. While cinematic and digital technologies often (or traditionally) offer us radically different modes of 'being in the world', VR and Post-VR films' approximation, appropriation and promotion of extradiegetic media experiences refract how the boundaries between digital and cinematic experience, between old and new media have become increasingly untenable.

My analysis thus raises questions about (and provides tentative answers to) where cinema finds itself – and indeed what cinema is – in the digital age. This and many other studies work both to negotiate the fissuring boundaries between film and other media,[8] and to assert cinema's relevance both as a form and scholarly field in an age of increasing digital mediation, transition and convergence.[9] In 2013, B. Ruby Rich's reflexive employment of the term 'film' in a post-celluloid age grasps 'the extent to which the category itself has forsaken its fixity', and how cinema's changes are matched by a sense of endurance through reinvention. She notes that

> film is on the verge of becoming a generic term, a signifier devoid of any fixed category, gesturing instead toward a legacy of meaning. Simultaneously, it is a term under renewal, expanding instead of folding, annexing terrain from the digital to the mobile, swapping scale and utility for grandeur and ceremony, adapting as forcefully as its users demand.[10]

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[8] William Uriccio for example examines the intertwined histories of cinema and television in order to disrupt formal-ontological essentialism and to suggest new modes of analysis for a multimediated digital age. See W. Uriccio, 'Film, cinema, television… media?' in *New Review of Film and Television Studies*, vol. 2, no. 3 (2014), 266-279.

[9] D. Andrew, *What Cinema Is!* (Malden, MA: Wiley-Blackwell, 2011).

[10] B. R. Rich, 'Film [sic]' in *Film Quarterly*, vol. 62, no. 2 (December 2013), 6.

As film studies' defining object has integrated with other media to an unprecedented degree, it is important both to apprehend the practical and conceptual challenges which the digital age has brought to the epistemological foundations of the discipline, and to be open to a variety of interdisciplinary methods and perspectives which help us to interpret new modes of narrative and aesthetic experience in cinema. For Rodowick, '[t]he history of cinema, and the concepts of film theory, become the most productive context for defining the audiovisuality and of our past and current centuries.'[11] And while I have similarly advocated the value of film studies as an epistemological approach to audiovisual culture, my conclusions recognise an enduring need to rethink the discipline in relation to new media technologies. In an age of 'big data', in which (since 2013) less than 2% of the world's stored information is non-digital,[12] and in which digitally enabled modes of research, pedagogy and publication are pervasive and ever-increasing, it is important to apprehend the value of such developments, to incorporate (and mediate) the new tools and perspectives which technological developments both demand and supply. In this context, however, I suggest that it is worth reemphasising the value of sustained close analysis – for as this study has shown, it is only through rigorous attention to individual works that we can grasp the multivalent cultural manifestations of cinema's complex interactions with the digital.

Since this project was born of a primary fascination with the development and transmutation of the VR subgenre, it seems fitting to conclude with a final reflection on its vicissitudes. While VR films *Strange Days* and *The Matrix* blur the boundaries between the real and the virtual to a greater extent than their predecessors (*Tron* and *The Lawnmower Man*), they retain a sense that mediation is distinct from the 'real'. Yet as their diegetic interfaces became decreasingly visible, spaces less ontologically 'othered', and bodies less drastically transformed, these films laid the foundations for Post-VR: for *Avatar* and *Source Code*'s wholesale rejection of outmoded binaries, their recognitions of the impossibility of 'disembodied' or 'unmediated' being, and their testament to the fading of a past VR imaginary. Kate O'Riordan has made a similar observation about cultural representations of 'biodigital' bodies in the 1980s and 1990s which were 'imagined as dystopic, utopic, and ironic entities that would provide the entry points and interfaces between virtual and actual.' Since then, however, '[a]s the virtual and actual have come together in the mundane everyday life that is digital culture, these spectacular bodies have become less salient for

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[11] Ibid.
[12] V. Mayer-Schönberger and K. Cukier, *Big Data: A Revolution that will Transform how we Live, Work and Think* (Boston: Houghton Mifflin Harcourt, 2013), 9.

thinking about the interface.'[13] Yet rather than seeing a disappearance of such representations, she notes, biodigital bodies endure in different ways, and 'continue to hold a kind of magical place' in the cultural imaginary.[14]

Through their particular figurations of the biodigital body, VR and Post-VR films articulate shifts not only in our embodied experiences of technology, but in the meaning of VR itself. Once a novel and futuristic concept, the bodily immersive VRs of the twentieth century cultural imaginary now denote a sense of banality and nostalgia – manifested in *Tron*'s 2010 reboot *Tron: Legacy*, as well as VR games company Iris' flagship game, Technolust, which is set in a tech-nostalgic world modelled on '1980's and 90's Cyberpunk fiction like *Blade Runner*, *Neuromancer* and *Robocop*.'[15] Indeed the 'reality' of VR today – audiovisual gaming technologies from Iris and Oculus Rift, and the 'augmented reality' of Google Glass, testify to how the term no longer denotes the kind of holistically embodied, fantastical experience it once did. Ahead of this paradoxically subdued reinvigoration of VR, the emergence of Post-VR testifies to how the subgenre, like cinema itself, endures through constant reinvention. As myriad digital technologies have become less spectacular and more quotidian, cinema's Post-VR imaginary has proffered new ways of imagining and experiencing immersive counter-realities for a world in which VR – once an oxymoron – has morphed into a tautology.

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[13] O'Riordan puts this down to how, '[a]lthough there has been an increased use of graphic avatars to represent online engagement, the digital bodies that augment people's lives as they use digital technologies everyday are less about these forms than they are about profiles. The digital bodies of everyday life are aggregations of information, data doubles, or data selves that do not materialize as graphic entities, but rather as drop-down menus, profiles, passwords, and other distributed systems of recognition and interaction.' See K. O'Riordan, 'Revisiting digital technologies: envisioning biodigital bodies' in *Communications*, vol. 36, no.3 (2011), 300.

[14] Ibid.

[15] See 'Technolust' on the Iris VR website [available at http://irisvirtualreality.com/un-portfolio/technolust-2, accessed 26/03/2016].

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